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Review

Geographical distribution and host range of *Sclerotinia sclerotiorum* causing stem rot of crucifers

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ABSTRACT

Crucifers (Family *Cruciferae*) include a major group of oilseeds and vegetable crops contributing significantly in the economy of agricultural crop commodities all over the world and have major share in edible quality oil and vegetable production. The *Brassica* genus is a member of *Brassicaceae* (*Cruciferae*) which contains 39 species. Stem rot of crucifers is caused by *Sclerotinia sclerotiorum* (Lib.) de Bary, a soil borne hemibiotrophic pathogen. It was initially described as *Peziza sclerotiorum* (Lib.) which is considered as the major species of genus *Sclerotinia* causing heavy yield losses in cruciferous crops all over the globe. The establishment of this pathogen has gone through several phases of research to recognize *Sclerotinia* species as disease causal agent, its family *Sclerotiniaceae*, distribution of *Sclerotinia* species and its type species *S. sclerotiorum* (Lib.) de Bary. The pathogen occurs all over the globe where crucifers are grown widely. As per distribution map of plant diseases of CABI, UK, it is distributed in every continent covering more than 92 countries. The crucifers' pathogen *S. sclerotiorum* has extra ordinary broad host range infecting more than 900 plant species from more than 98 families. According to USDA database, it is associated with 2048 host species and varieties. Most of the hosts are dicotyledonous herbaceous plants but several of them also belongs to monocots. The molecular evolutionary features of *Sclerotinia* as host generalists have been revealed after sequencing of its genome. The oxalic acid production gene is expressed 10-300 times higher in host generalists than in the host specialists, concomitant with accumulation of a larger amount of oxalic acid during infection. The molecular determinants of host range indicated preference of *S. sclerotiorum* for dicotyledonous plants but few monocots have also been reported. The pathogen produces ethylene including peptide 1 like proteins (NLPs) which elicit cell death and subsequent necrosis in most dicots and some monocots. The NLPs cause necrosis by binding to a specific form of the membrane lipid glycosylinositol-phosphorylceramid, which is wide spread among dicots but rare among monocots. The host records, which have not been reported in the publication of Saharan and Mehta (2008), are presented in this review.

Key words: *Sclerotinia sclerotiorum*, geographical distribution, host range, molecular virulence determinants

The pathogen *Sclerotinia* has been a fascinating subject of research for mycologists, plant pathologists, breeders and molecular biologists due to its life style (biotrophs to necrotrophs), wide distribution, and host range, complex host resistance and its evolutionary and molecular features. The establishment of *Sclerotinia* as a species, as causal agent, its family *Sclerotiniaceae*, distribution of species, *S. sclerotiorum* as major species, and management practices has gone through several phases of research all over the world.

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The early phase of establishment of *Sclerotinia* species

Although the importance of *Sclerotinia* as a plant pathogen has long been known but detailed historical account of *Sclerotinia* was given by Purdy (1979). In 1837, Liebert described *Peziza sclerotiorum.* Fuckel (1870) constructed and described the genus *Sclerotinia.* He chose to honour Liebert (1837) by renaming *Peziza sclerotiorum* with a newly coined binomial, *Sclerotinia libertiana.* According to Wakefield (1924), Fuckel apparently disliked the combination of *S. sclerotiorum* and elected to establish the new one. The *S. libertiana* Fuckel was in use until Wakefield (1924) showed it to be inconsistent with the International Rules of Botanical Nomenclature and cited G. E. Massee as the proper

authority for *Sclerotinia sclerotiorum* (Lib.) Massee because he has used that binomial up to 1985, but de Bary used it in his 1884 contribution. Thus, the proper name and authority for this pathogen seems to be *Sclerotinia sclerotiorum* (Lib.) de Bary. Ericksson (1880) described the pathogen of clover stem rot as *Sclerotinia trifoliorum* Erikss. Then Wolf and Cromwell (1919) suggested that clover stem rot might had present near Berber beck in Hesse, Germany in 1857. It was mentioned that the disease name may be synonymous with the name clover sickness, a disease known in England in the early 1800s and on which personnel at Rothamsted Experiment Station began work in 1849. However, the disease apparently attributed to *S. trifoliorum* in 1897. According to Wolf and Cromwell (1919), the first report of *S. trifoliorum* in the USA was published in Delaware in 1890. Jagger (1913) described the small sclerotial type from lettuce, celery and other crops in several locations in New York and from lettuce in Sanford, Florida as *S. minor.* Valleau *et al.* (1933) suggested that *S. minor* and *S. trifoliorum* are identical with *S. minor* occurring on host (lettuce) not commonly recognized as a host for *S. trifoliorum,* thus, associated host and size of sclerotia were used as the basis for speciation of *Sclerotinia* isolates. Additional species were recognized as *S. intermedia* Ramsy, *S. serica* Keay, *S. trifoliorum* Erikss. var. *fabae* Keay and *S. sativa* Drayton and Groves. Dennis (1956) included *S. sclerotiorum, S. trifoliorum* (also the variety *fabae*), *S. minor, S. serica* and *S. tuberosa* but did not mention *S. intermedia* or *S. sativa,* it suggests that these latter two as valid species were not recognized or that these species occur only in the new world. It appears that others share concepts or parts of concepts with Dennis, because *S. intermedia, S. sativa* and *S. serica,* along with *S. trifoliorum* var. *fabae* seem to have disappeared from the literature as if they were the "Putdown men" of *Sclerotinia* spp.

The establishment of family *Sclerotiniaceae*

The *Sclerotiniaceae* is a family of fungi in the order Helotiales in the phylum Ascomycota. The *Sclerotiniaceae* includes species producing inoperculate asci from brownish stipitate apothecia that arise from a sclerotial stroma within or associated with a host plant (Whetzel, 1945). The development of a sclerotial stroma, a melanized hyphal aggregate is the common character of all members of the *Sclerotiniaceae*. Although such teleomorphic features have been strongly conserved in the *Sclerotiniaceae*, there is large diversity in the anamorphic state, which has been the impetus for a separation of genera within the family (e.g. *Monilinia* for species with *Monilia* anamorphs, *Botryotinia* for species with *Botrytis* anamorph, etc.) which was supported by Kohn (1979b). Additional taxonomic criteria used since Whetzel's (1945) delimitation of the *Sclerotiniaceae* include characteristics of sterile tissues of apothecia and sclerotia (Kohn, 1979a, b; Korf and Dumont, 1972), sclerotial ontogeny (Willetts and Wong, 1980), histochemistry and ultrastructure of sclerotia (Backhouse and Willetts, 1984), biochemical characteristics (Carbone and Kohn, 1993), and *rRNA* gene sequences (Holst-Jensen *et al.,* 1997 a, b). Presently, 33 genera have been recognized (Willetts, 1997) in this family.

The distribution of *Sclerotinia* species

The distribution of species within the genus has been revised several times. Systems of species separation within *Sclerotinia* have been focused on size of sclerotia (Jagger, 1920), host association (Kreitlow, 1949), ascus and ascospore size (Ramsey, 1924), or nuclear and mitochondrial RFLP analyses (Kohn *et al.,* 1988). As universally accepted, three valid species remain in *Sclerotinia* sensu strict to *S. minor* Jagger, *S. trifoliorum* Eriks and *S. sclerotiorum* (Lib.) de Bary (Kohn *et al.,* 1988). Further, it was reported that *S. asari* Wu and Wang (Wu and Wang, 1983) and *S. nivalis* Saito (Li *et al.,* 2000; Saito, 1997) were distinct members of *Sclerotinia* based on DNA analysis. Another species *S. homoeocarpa* F.T. Bannett has been considered valid but has not been formally reclassified (Kohn, 1979b; Rossman *et al.,* 1987).

The establishment of *Sclerotinia sclerotiorum* as a species

The *Sclerotinia sclerotiorum* was first described in 1837 as *Peziza sclerotiorum* (Liebert, 1837). This binomial stood as such until the species was transfered to the new genus *Sclerotinia* (Fuckel, 1870) and renamed *Sclerotinia libertiana* Fuckel in honour of Libert (Purdy, 1979) with *Peziza sclerotiorum* Lib. and *S. sclerotii* Fuckel cited as synonyms (Wakefield, 1924). Mycologists and plant pathologists accepted and used *S. libertiana* until Wakefield (1924) showed

it to conflict with the International Code of Botanical Nomenclature as a species that is transferred from one genus to another must retain the original specific name, unless the resulting combination is already occupied whereas in this case, *Sclerotinia sclerotiorum* was not already under taken. However, Wakefield (1924) incorrectly reported that G. E. Massee first used the combination of *S. sclerotiorum* in 1895, resulting in the citation *S. sclerotiorum* (Lib.) Massee. Purdy (1979) observed that de Bary used the name in 1884, and therefore, the proper name and authority for the fungus should be *Sclerotinia sclerotiorum* (Lib.) de Bary.

In addition to the confusion regarding the correct name for the fungus, there has also been uncertainty regarding the correct type specimen (Korf and Dumont, 1972). To resolve this issue, the type species for the genus *Sclerotinia sclerotiorum* (Lib.) de Bary, it was proposed for conservation in 1973 by Buchwald and Neergaard (Kohn, 1979b) and it had been accepted as a conserved name in 1981.

The establishment of *Sclerotinia* as a disease causing agents

Certain diseases caused by *S. sclerotiorum* may serve as indicators of the history (Purdy, 1979). Lettuce drop is a classical example where Smith (1900) demonstrated beyond question that *S. sclerotiorum* (used *S. libertiana)* caused "drop" and that *S. sclerotiorum* and *Botrytis cinerea* are different fungi. These two fungi produced similar disease of lettuce, but the true drop caused by *S. sclerotiorum,* was more common on glasshouse lettuce in Massachusetts in the late 1890s than was the disease caused by *B. cinerea.* Stevens and Hall (1911) reported that lettuce drop occurred in Massachusetts in 1890, Florida in 1896, North Carolina in 1897 and Wisconsin in 1904. In contrast, Burger (1913) described the occurrence of lettuce drop near Gainesville in 1896 and in North Carolina in 1897. However, it was not until 1900 that this classic disease was attributed to *S. libertiana* (*S. sclerotiorum*) in Massachusetts. Jagger (1913) stated that the fungus described by Smith (1900) was the same one he had observed associated with lettuce in several areas of New York and suggested that this fungus was an "undescribed" species of *Sclerotinia.* Thus, Jagger (1920) described the small-sclerotia type as *Sclerotinia minor.* Held and Haenseler (1953) suggested that severe attacks of lettuce drop in the field planted for the first time following clover or lucerne (alfalfa) was caused by *S. trifoliorum.* Gilbert and Bennett (1917) as well as Wolf and Cromwell (1919) stated that Rhem in 1872 designated the pathogen of clover stem rot as *Peziza ciborioides* Fries, a name considered to be untenable by Ericksson (1880) who described the pathogen as *S. trifoliorum.* The first report of clover stem rot in the USA was in 1890 by Wolf and Cromwell (1919). According to Jones (1923), stalk rot of sunflower was caused by *S. libertiana* (*S. sclerotiorum*). Although, Sclerotinia blight of peanut had been reported in China in 1935, in Argentina in 1950 but it was reported in 1974 in the USA (Beute *et al.,* 1975). Smith (1929, 1931) described cottony rot of lemons. Later Smith (1929, 1931) described the life history of *S. sclerotiorum* in relation to green fruit rot disease of apricot. Taubenhaus and Ezekiel (1931) reported limb blight of fig. Dickson (1930) reported wilt of greenhouse tomatoes and confirmed the pathogen to be *S. libertiana* (*S. sclerotiorum*). Harter and Zaumeyer (1944) dealt with white mould of beans in detail.

The geographical distribution of *Sclerotinia*

The *Sclerotinia* is one of the most devastating and cosmopolitan plant pathogens. More than 60 names have been used to refer to diseases caused by this fungal pathogen. The fungus infects over 900 species of plants worldwide (O'Sullivan *et al.,* 2021). The *S. sclerotiorum* has been reported from many countries located in all continents. Davies *et al.* (1999) have briefly reviewed the occurrence and distribution of *S. sclerotiorum, S. trifoliorum*, and *S. minor* on various crops in the UK. It is probable that the fungus occurs somewhere in almost every country or every part of the earth (Purdy, 1979; Boland and Hall, 1994; Saharan and Mehta, 2008).

The distribution map of *S. sclerotiorum*

A distribution map is provided for *Sclerotinia sclerotiorum* (Lib.) de Bary Fungi: Ascomycota: Helotiales Hosts: Plurivorous. The pathogen has been reported from different parts of the globe on more than 900 host plants (Table 1). **Europe**:- Albania, Austria, Belarus, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Central Russia, Russian

Far East, Southern Russia, Serbia and Montenegro, Slovakia, Spain, Sweden, Switzerland, UK, Ukraine; **Asia**:- Azerbaijan, China (Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan), Hong Kong (Hubei, Hunan, Jiangsu, Jiangxi, Jifin, Liaoning, Nei Menggu, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizhang, Yunnan, Zhejiang), Republic of Georgia, India (Arunachal Pradesh, Assam, Bihar, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal), Iran, Israel, Japan (Hokkaido, Honshu, Kyushu, Ryukyu Archipelago, Shikoku), Jordan, Korea Republic, Lebanon, Nepal, Pakistan, Singapore, Syria, Taiwan, Tajikistan, Thailand, Turkey, Uzbekistan; **Africa**:- Algeria, Congo, Egypt, Ethiopia, Kenya, Libya, Malawi, Mauritius, Morocco, Nigeria, South Africa (St. Helena), Tanzania, Zimbabwe; **North America**:- Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan), Mexico, USA (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Owa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming); **Central America and Caribbean (Bermuda)**:- Costa Rica, El Salvador, Guatemala, Nicaragua, Panama; **South America**:- Argentina, Bolivia, Brazil (Mato Grosso, Minas Gerais, Parana, Rio Grande Do Sul, Sao Paulo), Chile, Ecuador, Peru, Uruguay, Venezuela, Oceania, American Samoa; **Australia:-** (New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia), Fiji, New Zealand, Samoa, (Distribution Map 1971) as per Distribution Maps of Plant Diseases, 2005a, CABI, UK.

For distribution map of *Sclerotinia minor, S. trifoliorum, S. fructigena, S. laxa, S. fructicola, S. squamosa*, *S. narcissicola, S. borealis,* and *S. fuckeliana*, please refer to book entitled "Sclerotinia Diseases of Crop Plants: Biology, Ecology and Disease Management" by Sahrana and Mehta (2008).

The host range of *S. sclerotiorum*

The *Sclerotinia sclerotiorum* appears to be among the most nonspecific, omnivorous and successful plant pathogen. The broad host range of this fungus is important for the control of disease in agricultural crops because it restricts the number of non-host crops that can be included in crop rotations designed to reduce the concentration of sclerotia in infected soils. The extensive host range of this pathogen restricts its use as a mycoherbicide because of the potential for dissemination of inoculum to non-target hosts. Determining the risk of disease in non-target plants is difficult because of the lack of a readily available and comprehensive host index of *S. sclerotiorum.* Records of susceptible hosts of this pathogen are scattered throughout the unpublished and published scientific literature. Partyka and Mai (1962) indicated that 172 species from 118 genera in 37 plant families are known to be susceptible hosts. Farr *et al.* (1989) listed 148 genera of plants that are susceptible to *S. sclerotiorum.* Schwartz (1977) reported a host range of 374 plant species from 237 genera in 65 families. Purdy (1979) referred to a compilation by P.B. Adams that included 361 species from 225 genera in 64 families. The most recent host index for *S. sclerotiorum* (Table 1) prepared by Boland and Hall (1994) contains 42 subspecies or varieties, 408 species, 278 genera, and 75 families of plants. According to Derbyshire *et al.* (2022), 425 species in 74 families of plants have been documented in the host list of *S. sclerotiorum*. Recent available literature revealed that the host range of *S. sclerotiorum* has crossed more than 900 plant species belongs to 98 familieis with about 441 genera (Table 1). It is likely that there are many yet undocumented hosts which are to be included in the list. The USA Department of Agriculture database includes 2048 different host species and varieties that are associated with *S. sclerotiorum*. There is considerable variation in the clarity of information provided in reports of new hosts of *S. sclerotiorum.* Changes in nomenclature of the fungus and the hosts represented one source of variability. A compilation of these records into a host index of *S. sclerotiorum* would facilitate analysis of the risk of using biological control products containing this pathogen. The critical determination of the host range of this pathogen is essential to identify potential sources of disease resistance, consolidate our knowledge of the host specificity of this pathogen and fungal evolution.

Except for one species of the Pteridophyta, all hosts of *S. sclerotiorum* occur in the classes Gymnospermae and Angiospermae of the Division Spermatophyta. Most hosts are herbaceous plants from the subclass Dicotyledoneae of the Angiospermae but several hosts also occur in the subclass Monocotyledonae. For the host range of *S. minor* Jagger and *S. trifoliorum* Erikss, please consult the book "Sclerotinia Diseases of Crop Plants: Biology, Ecology and Disease Management" by Saharan and Mehta (2008). In the present review article, hosts recorded upto 1994 as reported by Boland and Hall (1994) and upto 2008 as updated by Saharan and Mehta (2008) have been excluded from the present lists. The researchers are requested to refer the above publication to see the list of host for this pathogen.

The distribution map of *S. sclerotiorum* in India

The Sclerotinia stem rot has also been considered as one of the most damaging disease for rapeseed-mustard crop in India since 1999, which was at peak during 2012, 2013, and 2014, and afterward, the disease significantly decreased. It may be due to climatic effects and technological advances for the management of this disease. However, the disease has been considered as one of the major problem since 1999 particularly in Rajasthan, Haryana, Madhya Pradesh, Uttar Pradesh, Uttrakhand, Bihar and Punjab states of the country. The Sclerotinia stem rot disease also behave differentially on different species/varieties of crucifers. It was recorded maximum on *B. rapa* ssp. Yellow Sarson (51.2%), followed by *B. rapa* ssp. Toria (50.2%), *Eruca sativa* (49%), *B. napus* (38.5%) and least on *B. carinata* (33.4%).

Sclerotinia sclerotiorum (Lib.) de Bary, the causal organism of Sclerotinia stem rot of *Brassica* is distributed worldwide including India with a wide host range of more than 900 plants (Saharan and Mehta, 2008; Sharma *et al.,* 2015). In India, this disease appeared to be serious since 1999 and resulted upto 40 per cent yield reduction with an average disease incidence of 67 per cent. Now a days, it ranks 3rd among the problems of oilseed *Brassica* in India (Saharan *et al.,* 2021). However, Sclerotinia stem rot is a menace to the cultivation of oilseed *Brassica* crops all over the world. The pathogen initial infection occurs on leaves, then on flowers, followed by stems and pods at different developmental stages of plant growth causing seed yield losses up to 80 per cent, as well as significant reductions in oil content and quality of the seed. The distribution of Sclerotinia rot disease in different states of India indicated on an average more than 20.0 per cent incidence whereas different states recorded the disease incidence of 40.2 per cent in Uttrakhand, 35.7 per cent in Haryana, 33.2 per cent in Rajasthan, 28.3 per cent in Madhya Pradesh, 27.2 per cent in Uttar Pradesh, 25.3 per cent in Punjab and 24.8 per cent in Bihar. Other states where Sclerotinia stem rot incidences were less than 20 % were Delhi (19.1%), West Bengal (10.0%), Himachal Pradesh (6.3%) and Assam (4.7%). The other mustard growing states of the country which have shown low disease incidence (in traces) of *Sclerotinia* included are Chhattisgarh, Jharkhand, Jammu and Kashmir, Manipur, Gujarat, Maharashtra and Tamil Nadu (Fig. 1). The geographical distribution map of Sclerotinia stem rot disease on rapeseed-mustard indicated its wide spread presence in India (Fig. 2). The geographical distribution map of Sclerotinia stem rot disease on rapeseed-mustard indicated the wide spread of disease in India (Fig. 2; Meena *et al.,* 2022).

Among different *Brassica* species infected by *Sclerotinia*, the most susceptible were *B. rapa* ssp. Brown Sarson cv. BSH-1 (55.8%), *Eruca sativa* cultivar RTM 314 (44.7%), *B. rapa* ssp. Toria cv. PT 303 (36.12%), *B. juncea* cv. Rohini (34.9%), and *B. rapa* ssp. Yellow Sarson cv. YSPB 9 (29.3%). However, low incidence was observed on *B. napus* cv. GSL 1 (15.3%) and *B. carinata* cv. DLSC 1 (20.6%) expressing a level of tolerance (Fig. 3). The Sclerotinia stem rot incidence during 2000-01, on Indian mustard was 9 per cent which continuously increased up to 81.8 per cent during the span of 2001-2014 with variable changes (81.8–7.5%) in its intensity between 2003 to 2020. However, after 2014, the severity decreased continuously from 57 to 17 per cent during 2015 to 2019 crop seasons (Fig. 4; Meena *et al.*, 2022).

The molecular determinants of host range of *S. sclerotiorum*

The majority of *S. sclerotiorum* hosts documented so far are dicotyledonous. However, there are no direct studies on what limits the host range of *S. sclerotiorum* at the molecular level but several speculations have been made (Boland and Hall, 1994; Saharan and Mehta, 2008; Derbyshire *et al.,* 2022). Numerous species, including *S. sclerotiorum*,

Table 1. Distribution of *Sclerotinia sclerotiorum* on different hosts*

Sr. No.	Host name	English name	Country	Year	Reference(s)
			Poaceae (Grass/Gramineae Family)		
1.	*Brachiaria decumbens*	Signal grass	Brazil	1998	Mendes *et al.* (1998)
2.	*Eleusine indica*	Indian goosegrass/ Yard-grass	China, Taiwan,	1979, 1979, 1986	Tai (1979); Anonymous (1979)
3.	*Melinis minutiflora*	Molasses grass	Brazil	1998	Mendes *et al.* (1998)
4.	*Panicum repens*	Torpedo grass/ Creeping panic	China, Taiwan	1979	Tai (1979); Anonymous (1979)
5.	*Zea* sp. (*Zea mays*)	Maize	Brazil, China, Russia	1998, 1979, 1990	Mendes *et al.* (1998); Tai (1979); Richardson (1990)
			Fabaceae (Pulse Family)		
6.	*Aeschynomene Americana*	Shyleaf	Australia	1990	Lenne (1990)
7.	*Arachis hypogaea*	Peanut	China, Georgia, New Mexico, Texas	2014, 2022, 2006, 2007, 2008	Yan *et al.* (2014); Zhang *et al.* (2022); Woodward *et al.* (2006); Sanogo and Puppala (2007); Woodward *et al.* (2008)
8.	*Cajanus cajan*	Pigeonpea	China, India	1979, 2002, 2015	Tai (1979); Chen (2002); Gupta *et al.* (2015)
9.	*Canavalia gladiate*	Sword bean	South Korea	2020	Han *et al.* (2020)
10.	*Cicer arietinum*	Chick pea	Arizona, Greece, Canada, North Dakota, USA	2000, 2000, 2006	Matheron and Porchas (2000); Hilton (2000); Chen *et al.* (2006)
11.	*Chamaecytisus palmensis*	Tagasaste/tree lucerne	New Zealand	1989	Pennycook (1989)
12.	*Crotalaria retusa*	Devil-bean, rattleweed	India	1998	Pande and Rao (1998)
13.	*Crotalaria spectabilis*	Rattlebox or showy rattlepod	Brazil	2015	Oliveira *et al.* (2015)
14.	*Crotalaria striata*	Giant striata	China, Taiwan	1979	Tai (1979); Anonymous (1979)
15.	*Dolichos* sp.	Dolichos plant	China, Taiwan	1979	Tai (1979); Anonymous (1979)
16.	*Glycine max*	Soybean	Bulgaria, Ethopia, Greece, Minnesota, South Africa	2009, 2019, 2000, 2011, 2000	Bobev (2009); Pawlowski *et al.* (2019) Bienapfl *et al.* (2011); Holevas *et al.* (2000); Crous *et al.* (2000)
17.	*Glycine soja*	Wild soybean	China	1979	Tai (1979)
18.	*Indigofera arrecta*	Natal indigo	China	1979	Tai (1979)
19.	*Indigofera natalensis*	Forest indigo	Japan	2007	Kobayashi (2007)
20.	*Lablab purpureus*	Hyacinth bean	Australia, Bangladesh	1990, 2014, 2018	Lenne (1990); Prova *et al.* (2014, 2018)
21.	*Lathyrus* sp.	Pea vines	Greece	1973	Pantidou (1973)
22.	*Lens culinaris*	Lentil	Manitoba, Saskatchewan, Canada, Bangladesh, Iran	2000, 2015, 2017	Hilton (2000); Ahmed and Akhond (2015); Mahdikhani and Aghaalikhani (2017)
23.	*Lens esculentum*	Lentil	India	1998	Pande and Rao (1998)
24.	*Lotus purshianus*	American Bird's-foot Trefoil	Washington	1973	Shaw (1973)
25.	*Lupinus albus*	White lupin/field lupine	India	1998	Pande and Rao (1998)

Sr. No.	Host name	English name	Country	Year	Reference(s)
26.	*Lupinus angustifolius*	European blue lupine/ Narrow leaf lupin/Blue lupin	South Africa	2000	Crous *et al.* (2000)
27.	*Lupinus cosentinii*	Sandplain lupin	Australia	1989	Shivas (1989)
28.	*Lupinus hirsutus*	Blue lupin	India	1998	Pande and Rao (1998)
29.	*Medicago sativa*	Alfalfa	Alberta, Manitoba, Saskatchewan, Canada	2000, 2021	Hilton (2000); Gossen and Howard (2021)
30.	*Melilotus* sp.	Sweet clover	Canada	1967, 1982	Conners (1967); Mederick and Piening (1982)
31.	*Mimosa pudica*	Shameplant	India	2018	Borah *et al.* (2018)
32.	*Neonotonia wightii*	Perennial soybean	Australia	1990	Lenne (1990)
33.	*Phaseolus aureus*	Mung bean	Texas, Virginia	1960	Anonymous (1960)
34.	*Phaseolus mungo*	Black gram	Virginia	1960	Anonymous (1960)
35.	*Phaseolus* sp.	Common bean	Australia, Canada, Poland, England, Idaho, Nebraska,	1956, 1972, 1978, 1986, 1990	Wilson (1956); Richardson (1990); Ginns (1986); Cook *et al.* (1972); Dennis (1978)
36.	*Phaseolus trinervius* (Syn. *Vigna radiata*)	Green gram	China , Taiwan	1979	Tai (1979), Anonymous (1979)
37.	*Phaseolus vulgaris*	Kidney bean/ Common bean	Argentina , Bulgaria, Cuba, France, India, Nebraska, Panama, Viet Nam	2000, 2006, 2009, 2010, 2011, 2013, 2014, 2018,	Bobev (2009); Luong *et al.* (2010); Walker *et al.* (2011); Piepenbring (2006); Martinez de la Parte *et al.* (2013); Salgado-Salazar *et al.* (2018); Hansda *et al.* (2014); Leyronas *et al.* (2018); Aban *et al.* (2018)
38.	*Pisum sativum*	Pea	France, South Africa, Bangladesh, Canada	2000, 2018, 2020,	Crous *et al.* (2000); Leyronas *et al.* (2018); Islam *et al.* (2020); Hilton (2000)
39.	*Pisum sativum* var. *arvense*	Field pea	Manitoba, Canada,	2000	Hilton (2000)
40.	*Pisum* sp.	Common pea	Australia	1982	Sampson and Walker (1982)
41.	*Psoralea corylifolia*	Babchi	China , India	1979, 2014	Tai (1979); Hansda *et al.* (2014)
42.	*Sesbania* sp.	River hemp	Israel	1963	Palti (1963)
43.	*Sophora flavescens*	Shrubby sophora	China	1961, 1979, 2002	Spaulding (1961); Tai (1979); Chen (2002)
44.	*Trifolium alexandrinum*	Egyptian clover	Pakistan	2017	Saira *et al.* (2017)
45.	*Trifolium procumbens* (as *T. dubium*)	Least hop clover	United States	1974	Schwartz (1977)
46.	*Trigonella foenum-graecum*	Fenugreek	Tunisia	2017	Gargouri *et al.* (2017)
47.	*Vicia cracca*	Bird vetch	China	1979	Tai (1979)
48.	*Vicia faba*	Broad bean	Bulgaria, North Dakota	2009, 2018	Bobev (2009); Chapara *et al.* (2018)
49.	*Vicia faba* var. *equina*	Horsebean	China	1979	Tai (1979)
50.	*Vigna sinensis*	Black-eyed pea	Australia , Mexico, Texas	1966, 1976, 1960	Simmonds (1966); Alvarez (1976); Anonymous (1960)

Sr. No.	Host name	English name	Country	Year	Reference(s)
		Brassicaceae (Mustard Family)			
51.	*Arabidopsis thaliana*	Mouse-ear cress	China	2008	Wang *et al.* (2008)
52.	*Arabis caucasica*	Garden arabis	New Zealand	1996	McKenzie and Dingley (1996)
53.	*Armoracia lapathifolia*	Horseradish	Korea	2003, 2004	Chang and Kim (2003); Cho and Shin (2004)
54.	*Brassica arvensis*	Charlock mustard/ Field mustard/ Wild mustard	India	2004	Ghasolia *et al.* (2004)
55.	*Brassica rapa* subsp. *chinensis* [Syn. *Brassica campestris* subsp *chinensis*]	Paksoy or Chinese Cabbage	Taiwan, Japan	1979, 1996	Anonymous (1979); Takeuchi and Horie (1996)
56.	*Brassica campestris* subsp. *Napus*	Rape, field mustard	Korea	2004	Cho and Shin (2004)
57.	*Brassica campestris* subsp. *pekinensis* [Syn. *Brassica rapa* subsp. *pekinensis*]	Napa cabbage	Korea	2004	Cho and Shin (2004)
58.	*Brassica campestris* var. *marinosa*	Rape/ Field mustard	Korea	2003, 2004	Cho and Shin (2004); Chang and Kim (2003)
59.	*Brassica campestris* var. *oleifera*	Rape/Field mustard /Bird's rape	China	1979	Tai (1979)
60.	*Brassica campestris* var. *purpuraria*	Common turnip/ Field mustard	China	1979	Tai (1979)
61.	*Brassica campestris* var. *rapa*	Bird's rape/ Field mustard	Australia	1989	Shivas (1989)
62.	*Brassica carinata*	Abyssinian mustard/ Ethiopian rapeseed	Florida, Australia	2000, 2012, 2016	Corato and Baviello(2000); Young *et al.* (2012); Kelley *et al.* (2012); Uloth *et al.* (2016)
63.	*Brassica caulorapa*	Stem turnip	Washington	1973	Shaw (1973)
64.	*Brassica cernua*	Karashina	China	1979	Tai (1979)
65.	*Brassica cretica* subsp. *Botrytis*	Common cauliflower	Greece	1973, 2000	Pantidou (1973); Holevas *et al.* (2000)
66.	*Brassica juncea*	Leaf mustard	Tennessee, USA	2018	Shrestha *et al.* (2018)
67.	*Brassica juncea* var. *tumida*	Tumorous stem mustard	China	1979	Tai (1979)
68.	*Brassica napobrassica*	Rutabaga	Montana, Washington	1973	Shaw (1973)
69.	*Brassica napus*	Rape	Argentina, Australia, Bulgaria, Canada, China, France, Greece, Norway, Texas, United States	2005, 2008, 2009, 2010, 2016, 2018, 2020, 2018	Gaetan and Madia (2005); Tziros *et al.* (2008); Bobev (2009); Isakeit *et al.* (2010); van de Wouw *et al.* (2016); Derbyshire and Denton-Giles (2016); Ficke *et al.* (2018); Yu *et al.* (2020); Leyronas *et al.* (2018)
70.	*Brassica napus* subsp. *napus*	Oilseed rape	China	2014	Zhou *et al.* (2014)
71.	*Brassica napus* var. *napobrassica*	Rutabaga	Australia, Canada, New Zealand	1982, 1986, 1989	Sampson and Walker (1982); Ginns (1986); Pennycook (1989)

Sr. No.	Host name	English name	Country	Year	Reference(s)
72.	*Brassica napus* var. *napus*	Rape	Australia, Florida	1984, 1989	Alfieri Jr *et al.* (1984); Cook and Dubé (1989)
73.	*Brassica napus* var. *oleifera*	Turnip	South Africa	2000	Crous *et al.* (2000)
74.	*Brassica oleracea*	Cabbage	Panama, Srilanka, USA Tennessee	2006,2017, 2018, 2020	Piepenbring (2006); Mahalingam *et al*. (2017); Adikaram and Yakandawala (2020); Shrestha *et al.* (2018)
75.	*Brassica oleracea* var. *acephala* D.C.	Kale	Korea	2004	Cho and Shin (2004)
76.	*Brassica oleracea* var. *botrytis*	Broccoli/ Cauliflower	Korea, India	2004, 2014	Cho and Shin (2004); Hansda *et al.* (2014)
77.	*Brassica oleracea* var. *capitata*	Cabbage	Korea, New Mexico	2004, 2015	Cho and Shin (2004); Sanogo *et al.* (2015)
78.	*Brassica oleracea* var. *gongylodes*	Kholrabi	Korea	2014	Kim *et al.* (2014)
79.	*Brassica oleracea* var. *italica*	Broccoli	South Africa	2000	Crous *et al.* (2000)
80.	*Brassica petsai*	Petsai	Mauritius	1968	Orieux and Felix (1968)
81.	*Brassica rapa* subsp. *sylvestris*	Wild Turnip	Australia	1982	Sampson and Walker (1982)
82.	*Brassica* sp.	Mustard/Crucifers	Bulgaria	2009	Bobev (2009)
83.	*Cardamine debilis*	Roadside bitter-cress	New Zealand	1989	Pennycook (1989)
84.	*Cardamine flexuosa debilis*	Wavy bittercress / Wood bitter-cress	China	1979	Tai (1979)
85.	*Cardamine hirsuta*	Hairy bittercress	China	1979	Tai (1979)
86.	*Cardamine regeliana*	Japanese bittercress	Taiwan	1979	Anonymous (1979)
87.	*Diplotaxis tenuifolia*	Wild rocket/ perennial wall-rocket	Italy	2005, 2013	Garibaldi *et al.* (2005a); Minuto *et al.* (2005a); Gilardi *et al.* (2013)
88.	*Erysimum perofskianum*	Wallflower/Afghan blister cress	New Zealand	1996	McKenzie and Dingley (1996)
89.	*Iberis sempervirens*	Evergreen candytuft	Italy	2007	Garibaldi *et al.* (2007a)
90.	*Iberis* sp.	Candytuft	California	1989	French (1989)
91.	*Matthiola incana*	Common stock	Korea	2004, 2017	Cho and Shin (2004); Choi *et al.* (2017a)
92.	*Nasturtium officinale*	Watercress	Italy, Hungary	2019, 2022	Garibaldi *et al.* (2019), Csullog *et al.* (2022)
93.	*Nasturtium sublyratum* [Syn. *Rorippa dubia*]	Garden nasturtium/ Capuchina	Taiwan	1979	Anonymous (1979)
94.	*Raphanus sativus* var. *longipinnatus*	Daikon/Radish	South Africa	2000	Crous *et al.* (2000)
95.	*Raphanus sativus* var. *oleiferus*	Fodder Radish	China	1979	Tai (1979)
96.	*Rorippa montana*	Variableleaf/ Yellowcress	China	1979	Tai (1979)
97.	*Rorippa* sp.	Yellow cress	Florida	1984	Alfieri *et al.* (1984)

Sr. No.	Host name	English name	Country	Year	Reference(s)
98.	*Sinapis alba*	White mustard	California, Canada, Texas, USA	1989, 1976, 1960, 1974	French (1989); Morrall *et al.* (1976); Anonymous (1960); Schwartz (1977)
99	*Sinapis arvensis*	Wild mustard	California	1989	French (1989)
		Cucurbitaceae (Gourd Family)			
100.	*Citrullus edulis*	Bitter cucumber	Bulgaria	2009	Bobev (2009)
101.	*Citrullus vulgaris* var. *citroides*	Citron	Canada, New Jersay, Texas	1967, 1960	Conners (1967); Anonymous (1960)
102.	*Cucumis melo*	Melon	Korea, France	2004, 2018	Cho and Shin (2004); Leyronas *et al.* (2018)
103.	*Cucumis sativus*	Cucumber	Bulgaria, India	2009, 2014	Bobev (2009); Hansda *et al.* (2014)
104.	*Cucumis sativus* var. *sativus*	Common cucumber	Korea	1991	Lee *et al.* (1991)
105.	*Cucurbita* sp.	Squash/ pumpkin	Bulgaria, California, Canada, Greece, Korea	2009, 1989, 1990, 2000, 2004	Bobev (2009); French (1989); Richardson (1990); Holevas *et al.* (2000); Cho and Shin (2004)
		Solanaceae (Nightshade Family)			
106.	*Calibrachoa hybrid*	Callie Pink Morn	Brazil	2020	Borrelli *et al.* (2020)
107.	*Capsicum annuum*	Pepper	Bulgaria, Spain, India	2009, 2016, 2014	Bobev (2009);Liu *et al.* (2016); Hansda *et al.* (2014)
108.	*Capsicum annuum* var. *acuminatum*	Cayenne pepper	Taiwan	1979	Anonymous (1979)
109.	*Capsicum annuum* var. *annuum*	Cayenne pepper	Canada, Florida	1986, 1984	Ginns (1986); Alfieri Jr *et al.* (1984)
110.	*Capsicum longum*	Long peppers	China	1979	Tai (1979)
111.	*Capsicum* sp.	Pepper	Brazil	1998	Mendes *et al.* (1998)
112.	*Datura alba*	Indian thorn apple	China, Taiwan	1979	Tai (1979); Anonymous (1979)
113.	*Lycopersicon esculentum*	Tomato	Bulgaria	2009	Bobev (2009)
114.	*Lycopersicon lycopersicum*	Tomato	Canada	1986	Ginns (1986)
115.	*Lycopersicon* sp.	Tomato	Rhode Island	2010	Goos (2010)
116.	*Nicotiana tabacina*	Tobacco	Taiwan	1979	Anonymous (1979)
117.	*Nicotiana tabacum*	Tobacco	Bulgaria, North Carolina	2009, 2011	Bobev (2009); Blanco-Meneses and Ristaino (2011)
118.	*Petunia hybrida*	Garden petunia	Italy	2009	Garibaldi *et al.* (2009)
119.	*Petunia violacea*	Violet petunia	China, Taiwan, Tanzania	1979, 1960	Tai (1979); Anonymous (1979); Riley (1960)
120.	*Physalis alkekengi*	Chinese lantern	New Zealand	1996	McKenzie and Dingley (1996)
121.	*Salpiglossis* sp.	Bitter little stick	California	1989	French (1989)
122.	*Solanum gilo*	Scarlet eggplant	Brazil	1998	Mendes *et al.* (1998)
123.	*Solanum lycopersicum*	Tomato	France, Iceland, India, New Jersay	1963, 2014, 2018	Jorstad (1963); Hansda *et al.* (2014); Leyronas et al. (2018); Salgado-Salazar *et al.* (2018)
124.	*Solanum melongena*	Eggplant	Bulgaria, Pakistan	2009, 2019	Bobev (2009); Kamran *et al.* (2019)
125.	*Solanum tuberosum*	Potato	Bulgaria, Idaho, India, Iran, Pakistan, Turkey, China	2009, 2017,2020, 2021	Bobev (2009); Dutta *et al.* (2009); Ojaghian (2009, 2020); Kurt *et al.* (2017b); Woodhall *et al.* (2020); Alam *et al.* (2021)

Sr. No.	Host name	English name	Country	Year	Reference(s)
			Chenopodiaceae (Goosefoot Family)		
126.	*Beta vulgaris*	Beet/Sugar beet	Bulgaria, Minnesota, North Dakota	2009, 2020,2021	Bobev (2009); Khan *et al.* (2020); Khan *et al.* (2021)
127.	*Beta vulgaris* var. *cicla*	Chard	Korea	2003, 2004	Chang and Kim (2003); Cho and Shin(2004)
128.	*Chenopodium ficifolium*	Fig-leaved goosefoot	China	1979	Tai (1979)
129.	*Chenopodium serotinum*	Fig leaf goosefoot	Taiwan	1979	Anonymous (1979)
			Convolvulaceae (Convolvulus/Morning glory Family)		
130.	*Asteromoea indica*	Indian aster/ Indian Kalimeris	China	1979	Tai (1979)
131.	*Dichondra* sp.	Silky Kidney-weed	California	1989	French (1989)
132.	*Ipomoea aquatic*	Water spinach	India	2014	Hansda *et al.* (2014)
133.	*Ipomoea reptans*	Water spinach	China, Taiwan	1979	Tai (1979); Anonymous (1979)
134.	*Ipomoea* sp.	Morning-Glories	Brazil	1998	Mendes *et al.* (1998)
			Asparagaceae (Asparagus Family)		
135.	*Asparagus officinalis* var. *altilis*	Asparagus	United States, Canada	1960, 1976	Anonymous (1960); Morrall *et al.* (1976)
			Asphodelaceae (Aloe Family)		
136.	*Xanthorrhoea australis*	Grass tree/ austral grasstree/ blackboy	Australia	1987	Spooner (1987)
			Amaryllidaceae/Liliaceae (Lily Family)		
137.	*Allium cepa*	Onion	Bulgaria	2009	Bobev (2009)
138.	*Allium fistulosum*	Welse onion	China, Taiwan	1979	Tai (1979); Anonymous (1979)
139.	*Allium tuberosum*	Garlic chives	South Korea	2017	Choi *et al.* (2017b)
140.	*Trillium decipiens*	Chattahoochee River wakerobin	Florida	1990	Miller (1991 a, b)
			Apiaceae (Carrot/Parsley/Umbelliferae Family)		
141.	*Aciphylla dieffenbachia*	Dumb cane or leopard lily	New Zealand	1999	McKenzie and Johnston (1999)
142.	*Anthriscus sylvestris*	Cow parsley	Korea	2003	Chang and Kim (2003)
143.	*Apium graveolens*	Celery	California	2006	Koike *et al.* (2006)
144.	*Bupleurum falcatum*	Sickle-leaved hare's-ear	Korea	2004	Cho and Shin (2004)
145.	*Carum petroselinum*	Parsley	China, Taiwan	1979	Tai (1979); Anonymous (1979)
146.	*Centella asiatica*	Gotu kola	China, Taiwan	1979	Tai (1979); Anonymous (1979)
147.	*Cryptotaenia canadensis*	Canadian honewort	Taiwan	1979	Anonymous (1979)
148.	*Cryptotaenia japonica*	Honewort	China	1979	Tai (1979)
149.	*Cuminum cyminum*	Cumin	India	2017	Prasad *et al.* (2017)
150.	*Daucus carota*	Carrot/ Queen Anne's lace/ Wild carrot	France, India	2018, 2015	Leyronas *et al.* (2018); Mondal *et al.* (2015)
151.	*Daucus sativus*	Carrot	Bulgaria, USSR	2009, 1990	Bobev (2009); Jovaisiene and Strukeinskas (1990)
152.	*Daucus* sp.	Carrot	England, UK	1978, 1986	Dennis (1978); Dennis (1986)
153.	*Eryngium maritimum*	Sea holly/Sea eryngo	Australia	1982	Sampson and Walker (1982)

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154.	*Ferula communis*	Giant fennel	Cyprus	1957	Georghiou and Papadopoulos (1957)
155.	*Foeniculum officinale*	Fennel	China	1979	Tai (1979)
156.	*Foeniculum vulgare*	Common Fennel	Korea, India	2016, 2015	Choi *et al.* (2016); Mondal *et al.* (2015)
157.	*Ligusticum acutilobum*	Licorice-root	Korea	2004	Cho and Shin (2004)
158.	*Oenanthe javanica*	Water celery/Water dropwort	China, Korea	1979, 2004	Tai (1979); Cho and Shin (2004)
159.	*Oenanthe stolonifera*	Water dropwort, water celery	Taiwan, California, Canada, Idaho, Indiana, Louisiana, Massachusetts, New Zealand, New York, Oregon, Scotland, Texas	1979, 1960, 1989, 1986, 1960	Anonymous (1979); Anonymous (1960); French (1989); Ginns (1986)
160.	*Petroselinum crispum*	Parsley	Turkey	2017	Kurt *et al.* (2017a)
161.	*Petroselinum sativum*	Parsley /Coriander	Korea	2004	Cho and Shin (2004)
162.	*Pimpinella brachycarpa*	Chamnamul	Korea	2004	Cho and Shin (2004)
		Linaceae (Flax Family)			
163.	*Linum usitatissimum*	Common flax	Bulgaria, France	2009, 2018	Bobev (2009); Leyronas *et al.* (2018)
		Malvaceae (Mallow Family)			
164.	*Abelmoschus esculentus*	Okra	Bangladesh, USA	2017, 1960, 1984	Prova *et al.* (2017); Anonymous (1960); Alfieri *et al.* (1984)
165.	*Alcea* sp.	Hollyhocks	British Columbia, Canada	1998	Joshi and Elmhirst (1998)
166.	*Althaea officinalis*	Marsh mallow	Korea	2016	Kim *et al.* (2016)
167.	*Gossypium hirsutum*	Upland cotton	Arizona	1974, 2018	Schwartz (1977); Hu *et al.* (2018)
168.	*Hibiscus cannabinus*	Indian hemp/ Deccan hemp	Florida, India	1984, 2015	Alfieri *et al.* (1984); Tripathi *et al.* (2015)
169.	*Hibiscus esculentus*	Okra	China, Florida, Taiwan, Massachusetts	1979, 1984, 1960, 1979	Tai (1979); Alfieri *et al.* (1984); Anonymous (1960); Anonymous (1979)
170.	*Hibiscus schizopetalus*	Spider hibiscus	China, Taiwan	1979	Tai (1979); Anonymous (1979)
171.	*Hibiscus trionum*	Flower-of-an-hour	New York	2009	Strauss and Dillard (2009)
172.	*Malva parviflora*	Cheeseweed	California	1989	French (1989)
173.	*Malva sylvestris*	Common mallow	China	1979	Tai (1979)
174.	*Malva verticillata*	Chinese mallow / cluster mallow	China, Korea, Taiwan	1979, 2004	Tai (1979); Cho and Shin (2004); Anonymous (1979)
175.	*Malvaviscus arboreus* var. *arboreus*	Lanka jaba	India	2014	Hansda *et al.* (2014)
176.	*Sida rhombifolia*	Arrowleaf sida	Brazil	1998	Mendes *et al.* (1998)
		Asteraceae (Aster/Daisy/Sunflower Family)			
177.	*Anthemis tinctoria*	Golden chamomile/ golden marguerite	Australia	1982	Sampson and Walker (1982)
178.	*Arctotheca calendula*	Capeweed/ cape dandelion	Australia	1982, 1989	Sampson and Walker (1982); Cook and Dubé (1989)
179.	*Arctotis grandiflora*	Silver arctotis	Israel	1963	Palti (1963)

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180.	*Argyranthemum frutescens*	Paris daisy	Italy	2008	Garibaldi *et al.* (2008)
181.	*Aster tataricus*	Atarinow's aster	Korea	2003, 2004	Chang and Kim (2003); Cho and Shin (2004)
182.	*Atractylodes lancea*	Chinese medicinal herb	China	2022	Han *et al.* (2022)
183.	*Blumea sericans*	Blumea	China, Taiwan	1979	Tai (1979); Anonymous (1979)
184.	*Calendula arvensis*	Field marigold	China	1979	Tai (1979)
185.	*Calendula officinalis*	Pot marigold	Bulgaria	2009	Bobev (2009)
186.	*Calendula officinalis* var. *subspathulata*	Pot marigold	Taiwan	1979	Anonymous (1979)
187.	*Calendula* sp.	Mary's gold / Scotch marigold	California	1989	French (1989)
188.	*Carduus* sp.	Plumeless Thistle	England	1978	Dennis (1978)
189.	*Carduus tenuiflorus*	Sheep thistle	New Zealand	1989	Pennycook (1989)
190.	*Carthamus* sp.	Distaff thistles	Mexico	1976	Alvarez (1976)
191.	*Carthamus tinctorius*	Safflower	Australia, California,Canada, Indiana, Mexico, North Dakota, New Zealand, Virginia, Washington, India	1966, 1963, 1989, 1967, 1986, 1990, 1960, 1976, 1989, 1924	Simmonds (1966); Zimmer *et al.* (1963); French (1989); Conners (1967); Ginns (1986); Richardson(1990); Alvarez (1976); Joshi (1924) Anonymous (1960); Pennycook (1989)
192.	*Centipeda minima*	Sneeze weed	China, Taiwan	1979	Tai (1979); Anonymous (1979)
193.	*Chrysanthemum indicum*	Indian chrysanthemum	China, New Zealand	1979, 1969	Tai (1979); Dingley (1969)
194.	*Chrysanthemum monilifera* ssp. *rotundata*	Bitou bush	Australia	2000	Cother (2000)
195.	*Chrysanthemum morifolium*	Florist's daisy/ hardy garden mum/Florists' chrysanthemum	Korea, Argentina	2004, 2003	Cho and Shin (2004); Wright and Palmucci (2003)
196.	*Chrysogonum virginianum*	Goldenstar or golden -knee	Tennessee	2018	Trigiano *et al.* (2018)
197.	*Cichorium endivia*	Endive	France	2018	Leyronas *et al.* (2018)
198.	*Cichorium intybus*	Chicory	Korea	2003, 2004	Chang and Kim (2003); Cho and Shin (2004)
199.	*Cirsium japonicum*	Korean Thistle	China	1967	Conners (1967)
200.	*Cirsium japonicum* var. *austral*	Formosan thistle	Taiwan	1979	Anonymous (1979)
201.	*Coreopsis drummondii*	Tickseed	India	2014	Khatua *et al.* (2014)
202.	*Cosmos sulphurous*	Garden cosmos/ Mexican aster	India	2015	Mondal *et al.* (2015)
203.	*Dahlia* sp.	Dahlia	Bulgaria, Rhode Island	2009, 2010	Bobev (2009); Goos (2010)
204.	*Dahlia variabilis*	Fireworks Mixed	California, Canada, Maine, New York, Scotland	1960, 1967, 1960, 1990	Anonymous (1960); Conners (1967); Richardson (1990)

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205.	*Dendranthema grandiflorum*	Florist's Chrysanthemum	Argentina	2003	Wright and Palmucci (2003)
206.	*Dichrocephala bicolor*	Bicolor Buttonweed	Taiwan	1979	Anonymous (1979)
207.	*Dichrocephala latifolia*	Bicolor Buttonweed	China	1979	Tai (1979)
208.	*Dimorphotheca pluvialis*	White African daisy	New Zealand	1996	McKenzie and Dingley (1996)
209.	*Dimorphotheca sinuata*	Cape marigold	California	1989	French (1989)
210.	*Eclipta alba*	False daisy	China, Taiwan	1979	Tai (1979); Anonymous (1979)
211.	*Emilia sonchifolia*	Lilac tasselflower/ Cupid's shaving brush	China, Taiwan	1979	Tai (1979); Anonymous (1979)
212.	*Enhydra fluctuans*	Buffalo spinach	India	2015	Mondal *et al.* (2015)
213.	*Erigeron crispus* (Syn. *Erigeron bonariensis*)	Wavy-leaf fleabane	China	1979	Tai (1979)
214.	*Erigeron linifolius*	Asthma weed	Taiwan	1979	Anonymous (1979)
215.	*Eupatorium formosanum*	Boneset	China, Taiwan	1979	Tai (1979); Anonymous (1979)
216.	*Euryops tenuis*	Grey-leaved euryops	New Zealand	1989	Pennycook (1989)
217.	*Gaillardia aristata*	Gaillardia	New Zealand, Canada	1989, 1967	Pennycook (1989); Conners (1967)
218.	*Gaillardia grandiflora*	Blanket flower	California, Italy	1997, 2015	Koike (1997); Garibaldi *et al.* (2015)
219.	*Gazania rigens*	Treasure flower	United States, New Zealand, Louisiana,	1974, 2006, 1989	Schwartz (1977); Holcomb (2006); Pennycook (1989)
220.	*Gerbera* spp.	Gerbera	Sicily, Italy, United States, New Zealand, Hungary, Italy	1991, 1974, 1946, 1985,1976	Greuter *et al.* (1991); Schwartz (1977); Brien (1946); Folk and Tusnadin (1985); Garibaldi and Gullino (1976)
221.	*Gnaphalium formosanum* [Syn. *Pseudognaphalium adnatum*]	Cudweeds	Taiwan	1979	Anonymous (1979)
222.	*Gnaphalium indicum*	Cudweeds	China, Taiwan	1979	Tai (1979); Anonymous (1979)
223.	*Gnaphalium luteoalbum* [Syn *Helichrysum luteoalbum*]	Jersey cudweed	China	1979	Tai (1979)
224.	*Guizotia abyssinica*	Niger	India, North Dakota	2009, 2003	Nagaraja and Krishnappa (2009); Bradley *et al.* (2003)
225.	*Helianthus annuus*	Sunflower	Bulgaria, Turkey	2009,2017	Bobev (2009); Ozer *et al.* (2017)
226.	*Helianthus* sp.	Common sunflower	England, Romania, North Carolina, UK	1978, 1985,1990, 1986	Dennis (1978); Grand (1985); Dennis (1986); Richardson (1990)
227.	*Helianthus tuberosus* (Syn. *Helianthemum tuberosus*)	Jerusalem artichoke/ Prickly Free Rock Roses	Turkey	2017	Ozer *et al.* (2017)
228.	*Helichrysum bracteatum*	Golden everlasting / Straw-flower	Brazil, Italy	2009, 2020	Duarte and Barreto (2009); Garibaldi *et al.* 2020)

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229.	*Hemisteptia carthamoides* [Syn. *Saussurea lyrata*]	Saw-wort	Taiwan	1979	Anonymous (1979)
230.	*Hemisteptia lyrata* [Syn. *Saussurea lyrata*]	Saw-wort/snow lotus	China	1979	Tai (1979)
231.	*Ixeridium dentatum*	Toothed ixeridium	South Korea	2017	Park *et al.* (2017)
232.	*Ixeris debilis*	Uncertain	China	1979	Tai (1979)
233.	*Ixeris denticulata*	Gutweed	China	1979	Tai (1979)
234.	*Ixeris oldhamii* [Syn. *Ixeridium laevigatum*]	Giant timber bamboo	Taiwan	1979	Anonymous (1979)
235.	*Lactuca debilis*	Prickly lettuce	Taiwan	1979	Anonymous (1979)
236.	*Lactuca formosana*	Maxim	China, Taiwan	1979	Tai (1979); Anonymous (1979)
237.	*Lactuca gracilifolia*	Grass leaf lettuce	China	1979	Tai (1979)
238.	*Lactuca indica*	Indian lettuce	China, Taiwan	1979	Tai (1979); Anonymous (1979)
239.	*Lactuca indica* var. *dracoglossa*	Indian lettuce	Korea	2003, 2004	Cho and Shin (2004); Chang and Kim (2003)
240.	*Lactuca laciniata*	Lettuce	Taiwan	1979	Anonymous (1979)
241.	*Lactuca oldhamii*	Prickly lettuce/ Milk thistle	China	1979	Tai (1979)
242.	*Lactuca sativa*	Garden lettuce	France, New Jersey, Tennessee, USA	2018, 2022, 2018	Leyronas *et al.* (2018); Poole (1922) Shrestha *et al.* (2018)
243.	*Lactuca* sp.	Lettuce	Bulgaria	2009	Bobev (2009)
244.	*Liatris spicata*	Dense blazing star/ Prairie feather	Florida	1991	Miller (1991a,b)
245.	*Osteospermum* sp.	African daisy	Argentina, Italy, Louisiana	2005, 2008	Wright *et al.* (2005); Garibaldi *et al.* (2008b); Holcomb (2005)
246.	*Parthenium hysterophorus*	Santa Maria feverfew	India	2004	Ghasolia and Shivpuri (2004)
247.	*Petasites* sp.	Butterburs	England	1978	Dennis (1978)
248.	*Senecio jacobaea*	Common ragwort	New Zealand	1996	McKenzie and Dingley (1996)
249.	*Sigesbeckia orientalis*	Common St. Paul's wort	China, Taiwan	1979	Tai (1979); Anonymous (1979)
250.	*Soliva anthemifolia*	Button Burrweed	China, Taiwan	1979	Tai (1979); Anonymous (1979)
251.	*Stevia rebaudiana*	Stevia	Canada, North Carolina	1997, 2014	Chang *et al.*(1997a); Koehler and Shew (2014)
252.	*Stevia* sp.	Candyleaf/ sweetleaf	Korea	2004	Cho and Shin (2004)
253.	*Symphyotrichum dumosum*	Rice button aster/ Bushy aster	Poland	2018	Pieczul (2018)
254.	*Tagetes erecta*	African marigold	India	2014, 2022	Hansda *et al.* (2014); Kumar *et al.* (2022)
255.	*Taraxacum officinale*	Common dandelion	Italy	2007	Garibaldi *et al.* (2007b)
256.	*Tithonia diversifolia*	Marigold, Mexican tournesol	Kenya	1961	Nattrass (1961)
257.	*Xanthium spinosum*	Spiny cocklebur/ Prickly burweed	Australia	1990	Nikandrow *et al.* (1990)
258.	*Xanthium strumarium*	Rough cocklebur	China, South Africa	1979, 2000	Tai (1979); Crous *et al.* (2000)

Sr. No.	Host name	English name	Country	Year	Reference(s)
			Boraginaceae (Borage Family)		
259.	*Borago officinalis*	Borage	Canada, Italy	2000, 2008	Hilton (2000); Garibaldi *et al.* (2008c)
260.	*Bothriospermum tenellum*	leaf between flower	China, Taiwan	1960, 1979	Tai (1979); Anonymous (1979)
261.	*Echium plantagineum*	Purple viper's-bugloss or Patterson's curse	Australia	1989	Cook and Dubé (1989)
262.	*Myosotis scorpioides*	Forget-me not	Illinois, Washington	1960	Anonymous (1960)
			Pedaliaceae (Pedalium Family)		
263.	*Sesamum indicum*	Sesame	Bulgaria, China, Korea	2009, 2004	Bobev (2009); Cho and Shin (2004)
			Rosaceae (Rose Family)		
264.	*Fragaria ananassa* (as *F. chiloensis* var. *ananassa*)	Strawberry	Egypt, Florida, Maryland	2007, 2020, 2022	Embaby (2007); Marin and Peres (2020); Hellman *et al.* (2022)
265.	*Prunus armeniaca*	Apricot	Chile, South Africa	2000, 2014	Ferrada *et al.* (2014); Crous *et al.* (2000)
266.	*Prunus avium*	Cherry wild	California	1987, 1989	French (1987, 1989)
267.	*Prunus dulcis*	Almond	California	1987, 1989	French (1987, 1989)
268.	*Prunus mume*	Chinese plum	Japan	2007	Kobayashi (2007)
269.	*Prunus persica* var. *nectarina*	Nectarines.	Chile	2014	Ferrada *et al.* (2014)
270.	*Prunus persica* var. *vulgaris*	Peach	Japan	2007	Kobayashi (2007)
271.	*Prunus salicina*	Japanese plum	Chile	2014	Ferrada *et al.* (2014)
272.	*Pyrus serotina* var. *culta*	Asian pear	Japan	2007	Kobayashi (2007)
			Rutaceae (Rue Family)		
273.	*Casimiroa edulis*	White sapote	Israel	1963	Palti (1963)
274.	*Citrus aurantium*	Seville orange	Turkey	2012	Baysal-Gurel *et al.* (2012)
275.	*Citrus grandis*	Pomelo	California	1987	French (1987)
276.	*Citrus junos*	Yuzu	Japan	2007	Kobayashi (2007)
277.	*Citrus limon* (as *C. medica* var. *limonum*)	Citron	Chile	2014	Ferrada *et al.* (2014)
278.	*Citrus limonia*	Rangpur	South Africa	2000	Crous (2000)
279.	*Citrus limonium*	Lemon	Cyprus	1957	Georghiou and Papadopoulos (1957)
280.	*Citrus meyerii*	Meyer lemon	California	1987	French (1987)
281.	*Citrus* sp.	Citrus fruits	Japan	2007	Kobayashi (2007)
282.	*Citrus unshiu*	Miyagawa mandarin	Japan	2007	Kobayashi (2007)
283.	*Citrus volkameriana*	Volkamer Lemon	Italy	2011	Polizzi *et al.* (2011)
284.	*Citrus paradisi*	Grapefruit	Pakistan	2016	Hanif *et al.* (2016)
285.	*Citrus tangelo*	Tangelo	California	1987, 1989	French (1987, 1989)
286.	*Eureka lemin*	Eureka Lemon	-	1999	Fogliata *et al.* (1999)
287.	*Poncirus trifoliata*	Hardy orange/ Trifoliate orange	Italy, Sicily	1991	Greuter *et al.* (1991)
288.	*Satsuma mandarin*	Mandrin	Korea	1996	Song and Koh (1999)

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			Vitaceae (Vine Family)		
289.	*Vitis* sp.	Wild grape	Australia, Greece, Japan, Mexico, Spain , USA Switzerland , Chile	2018, 2001	Jayawardena *et al.* (2018); Latorre and Guerrero (2001)
290.	*Vitis vinifera*	Grape	Chile , Japan, Spain, Switzerland	2001, 2014, 2007, 2009, 2011	Ferrada *et al.* (2014); Kobayashi (2007); Latorre and Guerrero (2001); Gonzalez and Tello (2011); Casieri *et al.* (2009)
291.	*Vitis vinifera* var. *vinifera*	Grape vine	Greece, New Zealand	1973, 1989	Pantidou (1973); Pennycook (1989)
			Moraceae (Mulberry Family)		
292.	*Artocarpus heterophyllus*	Jackfruit	Bangladesh	2015	Rahman (2015)
293.	*Broussonetia kazinoki* (Syn. *Orus papyrifera*)	Paper mulberry	Japan	2007	Kobayashi (2007)
294.	*Ficus carica*	Fig	Japan	2007	Kobayashi (2007)
295.	*Morus alba*	White mulberry	Japan	2007	Kobayashi (2007)
296.	*Morus* spp.	Mulberry	Bulgaria, Iran, Japan	2009, 2013, 2007	Bobev (2009); Arzanlou and Dokhanchi (2013); Kobayashi (2007)
			Euphorbiaceae (Spurge Family)		
297.	*Acalypha australis*	Asian copperleaf	China, Taiwan	1979	Tai (1979); Anonymous (1979)
298.	*Euphorbia heterophylla*	Painted euphorbia	Brazil	1998	Mendes *et al.* (1998)
299.	*Euphorbia pulcherrima*	Pointsettia	Viet Nam	2012	Trinh *et al.* (2012)
300.	*Euphorbia wulfenii*	Mediterranean spurge	New Zealand	1989	Pennycook (1989)
301.	*Manihot esculenta*	Cassava manioc/ Yuca	China	1979	Tai (1979)
302.	*Manihot utilissima*	Cassava	Taiwan	1979	Anonymous (1979)
303.	*Phyllanthus fraternus*	Gulf leaf flower	India	2004	Ghasolia *et al.* (2004)
304.	*Phyllanthus niruri*	Gale of the wind	China, Taiwan	1979	Tai (1979); Anonymous (1979)
			Musaceae (Banana Family)		
305.	*Musa acuminata*	Banana	Australia	1966	Simmonds (1966)
			Pinaceae (Pine Family)		
306.	*Cryptomeria japonica*	Japanese cedar	Japan	2007	Kobayashi (2007)
			Annonaceae (Custard-Apple Family)		
307.	*Annona squamosa*	Sugar apple	Israel	1963	Palti (1963)
308.	*Asimina* sp.	Pawpaw	Bermuda	1946	Kinghorn (1947)
			Iridaceae (Iris Family)		
309.	*Freesia hybrida*	Freesia	Bulgaria	2009	Bobev (2009)
310.	*Iris* sp.	Iris	Bulgaria	2009	Bobev (2009)
311.	*Iris tingitana*	Bulbous spanish iris	Australia	1989	Shivas (1989)
			Campanulaceae (Bluebell Family)		
312.	*Adenophora remotiflora*	Scattered lady bell	Korea	2003, 2004	Chang and Kim (2003); Cho and Shin (2004)

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313.	*Campanula acuminata*	American bell flower	China	1979	Tai (1979)
314.	*Lobelia chinensis*	Asian lobelia	China	1979	Tai (1979)
315.	*Lobelia radicans*	Asian lobelia	Taiwan	1979	Anonymous (1979)
316.	*Lobelia* sp.	Cardinal flower	California	1989	French (1989)
317.	*Phyteuma japonicum*	Rampion	Korea	2003	Chang and Kim (2003
318.	*Platycodon grandiflorum*	Balloon flower	Korea	2004	Cho and Shin (2004)
319.	*Trachellium caeruleum*	Blue throatwort	Argentina	2005	Wolcan and Grego (2005)
			Cannabaceae (Hemp Family)		
320.	*Cannabis sativa*	Marijuana, hemp	British Columbia, Canada, Oregon, France	1967, 2021, 2018	Conners (1967); Punja and Ni (2021); Garfinkel (2021); Leyronas *et al.* (2018)
321.	*Codonopsis lanceolata*	Deodeok or lance asiabell	Korea	2020	Choi *et al.* (2020)
322.	*Humulus lupulus*	Common Hop	United States	1974, 2012	Schwartz (1977); Kropf *et al.* (2012)
			Lamiaceae (Mint Family)		
323.	*Ajuga genevensis*	Blue bugle	Australia	1982	Sampson and Walker (1982)
324.	*Coleus blumei*	Coleus	Florida	1984	Alfieri Jr *et al.* (1984)
325.	*Lavandula angustifolia*	English lavender	Europe	2007	Orlikowski and Valjustkaite (2007)
326.	*Mentha arvensis* var. *piperascens*	Japanese mint	China	1979	Tai (1979)
327.	*Mentha arvensis* var. *vulgaris*	Corn mint	Taiwan	1979	Anonymous (1979)
328.	*Mentha canadensis* var. *piperascens*	American wild mint	Taiwan	1979	Anonymous (1979)
329.	*Mentha spicata*	Spear mint	Italy	2013	Garibaldi *et al.* (2013)
330.	*Ocimum basilicum*	Basil	Turkey	2008	Tok (2008)
331.	*Origanum vulgare*	Wild marjoram	Italy	2007	Garibaldi *et al.* (2007b)
332.	*Physostegia virginiana*	Obedience	Korea	2004	Cho and Shin (2004)
333.	*Prunella vulgaris*	Common self-heal	Australia	1982	Sampson and Walker (1982)
334.	*Rosmarinus officinalis*	Rosemary	India, Italy	1994, 2005, 2017	Mohan (1994); Garibaldi *et al.* (2005b); Garibaldi *et al.* (2017); Minuto *et al.* (2005b)
335.	*Salvia miltiorrhiza*	Salvia root/rhizome	Taiwan	2020	Lu *et al.* (2020a,b)
336.	*Salvia officinalis*	Common saga	Italy, New Zealand	2004	Minuto *et al.* (2004)
337.	*Salvia splendens*	Scarlet sage	Bangladesh	2019	Islam *et al.* (2019)
338.	*Thymus citriodorus*	Thyme	Italy, Bangladesh	2004, 2019	Minuto *et al.* (2004); Islam *et al.* (2019)
			Papaveraceae (Poppy Family)		
339.	*Corydalis bulbosa*	Fumewort/bird-in-a-bush	China	1979	Tai (1979)
340.	*Macleaya cordata*	Five-seeded plume-poppy	China	2019	Zhou *et al.* (2019)
341.	*Meconopsis* sp.	Welsh poppy	Scotland	1961	Foister (1961)
342.	*Papaver nudicaule*	Arctic poppy	Australia	1966	Simmonds (1966)

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343.	*Papaver somniferum*	Opium poppy	India	2003	Singh *et al.* (2003)
344.	*Papaver* sp.	Opium poppy/ bread seed poppy	Bulgaria	2009	Bobev (2009)
345.	*Romneya coulteri*	California tree poppy	Canada	1986	Ginns (1986)
		Passifloraceae (Passionflower Family)			
346.	*Passiflora caerulea*	Blue crown passion flower	China , Taiwan	1979	Tai (1979), Anonymous (1979)
		Plantaginaceae (Plantain Family)			
347.	*Antirrhinum majus*	Common snapdragon	California, Canada, Chile, Florida, Illinois, Korea, Mauritius, New Zealand, Ohio, Scotland, Texas, UK	1989, 1967, 1984, 1964, 2004, 1968, 1932, 1957, 1961, 1960, 1926,	French (1989); Conners(1967); Mujica and Oehrens (1967); Alfieri *et al.*(1984); Boewe (1964); Cho and Shin (2004); Brien (1932); Orieux and Felix (1968); Pennycook (1989); Ellett (1957); Dowson (1926); Foister (1961); Anonymous (1960)
348.	*Antirrhinum* sp.	Dragon flowers	Cyprus	1957	Georghiou and Papadopoulos (1957)
349.	*Digitalis purpurea*	Common foxglove	New York	1960	Anonymous (1960)
350.	*Hebe* sp.	Hebe plant	New Zealand	1989	Pennycook (1989)
351.	*Penstemon gloxinioides*	Foxglove beard-tongue	Japan	1996	Takeuchi and Horie (1996)
352.	*Plantago asiatica*	Chinese plantain	China	1979	Tai (1979)
353.	*Plantago formosana*	Plantains/ fleaworts	Taiwan , United States	1979, 1974	Anonymous (1979) ; Schwartz (1977)
354.	*Penstemon gloxinioides*	Foxglove beard-tongue	Japan	1996	Takeuchi and Horie (1996)
		Polemoniaceae (Polemonium Family)			
355.	*Phlox* sp.	Phlox	Italy	2007	Lahoz *et al.* (2007)
		Polygonaceae (Buckwheat Family)			
356.	*Fagopyrum esculentum* Moench.	Buckwheat	Italy	2007	Lahoz *et al.* (2007)
357.	*Fagopyrum tataricum* Gaertn.	Buckwheat	India	2002	Mondal *et al.* (2002)
358.	*Polygonum aviculare*	Common knotgrass	China	1979	Tai (1979)
359.	*Polygonum lapathifolium*	Pale persicaria	China, Taiwan	1979	Tai (1979); Anonymous (1979)
		Portulacaceae (Purslane Family)			
360.	*Portulaca oleracea*	Common purslane	Australia	1989	Shivas (1989)
		Primulaceae (Primrose Family)			
361.	*Ardisia crenta*	Coral berry	Florida	1984	Alfieri *et al.* (1984)
362	*Ardisia crispa*	Ardisia	Florida	1984	Alfieri *et al.* (1984)
		Ranunculaceae (Crowfoot Family)			
363.	*Anemone coronaria*	Poppy anemone	Korea	2013	Han *et al.* (2013)
364.	*Anemone* sp.	Wind flowers	Australia, California	1989	Shivas (1989); French (1989)
365.	*Aquilegia flabellata*	Dwarf columbine	Italy	2011	Garibaldi *et al.* (2011)
366.	*Consolida ambigua*	Larkspur	New Zealand	1989	Pennycook (1989)

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367.	*Delphinium ajacis*	Rocket larkspur	Missouri, Texas	1960	Anonymous (1960)
368.	*Ranunculus asiaticus*	Persian buttercup	Argentina, Korea	2005, 2015	Wright *et al.* (2005); Han *et al.* (2015)
369	*Ranunculus cantoniensis*	Chinese Buttercup	China	1979	Tai (1979)
370.	*Ranunculus ficaria*	Lesser celandine or pilewort	Norway	1997, 1997, 1998, 2002, 2004,	Holst-Jensen *et al.* (1997a, 1997b, 1998); Nielsen *et al.* (2002); Holst-Jensen *et al.*(2004)
		Scrophulariaceae (Figwort Family)			
371.	*Linaria* sp.	Golden flax	Arizona	1960	Anonymous (1960)
372.	*Eremophila maculata*	Potted emu bush/ spotted fuchsia-bush	Australia	1989	Cook and Dubé (1989)
373.	*Linaria canadensis*	Blue toadflax	Florida	1984	Alfieri *et al.* (1984)
374.	*Mazus stolonifer* [Syn. *Mazus miquelii*]	Creeping mazus	Taiwan	1979	Anonymous (1979)
375.	*Torenia* sp.	Bluewings/ wishbone flower	California	1989	French (1989)
		Calceolariaceae (Slipperwort Family)			
376.	*Calceolaria integrifolia*	Bush slipperwort	Italy	2008	Garibaldi *et al.* (2008a)
		Urticaceae (Nettle Family)			
377.	*Boehmeria frutescens* [Syn. *Leucosyke puya*]	Chinese silk plant	Taiwan	1979	Anonymous (1979)
378.	*Boehmeria nivea*	True ramie/ Chinagrass	China	1979	Tai (1979)
379.	*Urtica gracilis*	Nettle	Saskatchewan, Canada	1938, 1976	Bisby (1938); Morrall *et al.* (1976)
380.	*Urtica holosericea*	Stinging Nettle	California	1989	French (1989)
381.	*Urtica urens*	Small Nettle	New Zealand	1996	McKenzie and Dingley (1996)
		Valerianaceae (Valerian Family)			
382.	*Valeriana officinalis*	Common valerian	Bulgaria	2009	Bobev (2009)
		Araceae (Arum Family)			
383.	*Arisaema dracontium*	Dragon-root or green dragon	Canada	1967	Conners (1967)
		Acanthaceae (Acanthus Family)			
384.	*Andrographis paniculata*	Creat or green chiretta	China	2016	Shi *et al.* (2016)
385.	*Barleria cristata*	Philippine violet	India	2015	Mondal *et al.* (2015)
386.	*Lepidagathis formosensis*	Orange daylily	China, Taiwan	1979	Tai (1979), Anonymous (1979)
		Actinidiaceae (Actinidia Family)			
387.	*Actinidia deliciosa*	Chinese gooseberry/ Kiwifruit	New Zealand, Korea	1989, 2014	Pennycook (1989); Lee *et al.* (2015)
		Aizoaceae (Carpet-weed Family/Ice plant Family)			
388.	*Tetragonia expansa*	New Zealand spinach	China, Taiwan	1979	Tai (1979); Anonymous (1979)
		Amaranthaceae (Amaranth Family)			
389.	*Alternanthera sessilis*	Stalkless Joyweed	China	1979	Tai (1979)

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390.	*Amaranthus* sp.	Undetermined	France, South Africa	2018	Leyronas *et al.* (2018); Crous *et al.* (2000)
391.	*Amaranthus viridis*	Slender /Green amaranth	India	2004	Ghasolia *et al.* (2004)
		Apocynaceae (Dogbane Family)			
392.	*Catharanthus roseus* (as *Vinca rosea*)	Madagascar periwinkle	Canada, Ontario	2016	Sun and Hsiang (2016)
		Araliaceae (Ginseng Family)			
393.	*Hydrocotyle sibthorpioides*	Lawn penny wort	China	1979	Tai (1979)
394.	*Panax quinquefolius*	American ginseng	China	2021,2022	Wang *et al.* (2021); Guan *et al.* (2022)
		Aristolochiaceae (Birthwort Family)			
395.	*Hydrocotyle rotundifolia*	Lawn marsh penny wort	Taiwan	1979	Anonymous (1979)
		Capparidaceae (Caper Family)			
396.	*Gynandropsis gynandra*	African spiderflower	China, India	1979, 2015	Tai (1979); Vinod *et al.* (2015)
		Caryophyllaceae (Pink Family)			
397.	*Dianthus caryophyllus*	Carnation/clove pink	India, Korea	2015; 2004	Vinod *et al.*(2015); Cho and Shin (2004)
398.	*Dianthus chinensis*	Rainbow pink/ China pink	China	1979	Tai (1979)
399.	*Dianthus* sp.	Pinks	California	1989	French (1989)
400.	*Gypsophila elegans*	Showy baby's-breath	Kenya	1939	Keay (1939)
401.	*Silene gallica*	Common catchfly	South Africa	1981, 2000	Gorter (1981); Crous *et al.* (2000)
		Dipsacaceae (Teasel Family)			
402.	*Dipsacus fullonum* (as *D. sylvestris*)	Common teasel	New Zealand, Texas, Russia	1989, 1960,1938	Pennycook (1989); Anonymous (1960); Masalab (1938)
403.	*Dipsacus sylvestris*	Wild teasel/fuller's teasel	Texas	1960	Anonymous (1960)
		Gentianaceae (Gentian Family)			
404.	*Eustoma grandiflorum*	Lisianthus	Argentina	1996	Wolcan *et al.* (1996)
405.	*Eustoma russellianum*	Texas blue bells	Taiwan	2012	Shen *et al.* (2012)
		Geraniaceae (Geranium Family)			
406.	*Erodium moschatum*	Musk stork's-bill	Australia	1982	Sampson and Walker (1982)
407.	*Pelargonium peltatum*	Ivy geraniums	New Zealand	1996	McKenzie and Dingley (1996)
408.	*Pelargonium zonale*	Geranium	New Zealand	1996	McKenzie and Dingley (1996)
		Gesneriaceae (Gesneria Family)			
409.	*Gloxinia* sp.	Sinningia hybrid	Bulgaria	2009	Bobev (2009)
410.	*Sinningia* sp.	Gloxinia	California	1989	French (1989)
		Juglandaceae (Walnut Family)			
411.	*Pterocarya stenoptera*	Chinese wingnut	China	2002	Chen (2002)
		Oleaceae (Olive Family)			
412.	*Forsythia suspensa*	Golden-bells	Japan	2007	Kobayashi (2007)

Sr. No.	Host name	English name	Country	Year	Reference(s)
413.	*Olea europaea*	Olive tree	Italy	2017	Ruano-Rosa *et al.* (2017)
		Orobanchaceae (Broom-rape Family)			
414.	*Orobanche cumana*	Sunflower, Broomrape	China	2010	Ding *et al.* (2012)
		Paeoniaceae (Paeony Family)			
415.	*Paeonia* sp.	Peony	Bulgaria, California	2009, 1989	Bobev (2009); French (1989)
416.	*Paeonia suffruticosa*	Moutan peony	Korea, Oklahoma	2004, 1960	Cho and Shin (2004); Anonymous (1960)
		Rubiaceae (Madder Family)			
417.	*Borreria alata* (Syn. *Spermacoce alata*)	Winged false button weed	Brazil	1998	Mendes *et al.* (1998)
418.	*Bouvardia* sp.	Fire cracker bush	Japan	2002	Horie and Hoshi (2002)
419.	*Galium aparine*	Cleavers	China	1979	Tai (1979)
420.	*Pentas* sp.	Egyptian starcluster	Florida	1991	Miller (1991a, b)
		Verbenaceae (Verbena Family)			
421.	*Lantana camara*	Lantana or shrub verbena	Italy	2008	Garibaldi *et al.* (2008d)
422.	*Verbena bonariensis*	Purpletop vervain	Poland	2019	Pieczul (2019)
		Sapindaceae (Soapberry and Lychee Family)			
423.	*Acer saccharinum*	Silver maple	Florida	1991	Miller (1991 a, b)
424.	*Aesculus hippocastanum*	Horse chestnut	Canada	1972, 1986	Gourley and Delbridge (1972); Ginns (1986)
		Caricaceae (Papaya Family)			
425.	*Carica papaya*	Papaya	Australia	1966	Simmonds (1966)
		Betulaceae (Birch Family)			
426.	*Carpinus betulus*	European/common horn beam	Poland	2006	Chlebicki and Chmiel (2006)
		Ericaceae (Heath/Blueberry Family)			
427.	*Chamaedaphne calyculata*	Leatherleaf/ cassandra	Poland	2015	Kowalik *et al.* (2015)
428.	*Vaccinium ashei*	Rabbiteye Blueberry	Japan	2007	Umemoto *et al.* (2007)
429.	*Vaccinium corymbosum*	Highbush blueberry	Argentina, Europe, Japan,	2011	Perez *et al.*(2011); Bustos Lopez *et al.* (2015); Umemoto *et al.* (2007)
		Commelinaceae (Dayflower Family)			
430.	*Commelina nudiflora*	Dayflowers	China, Taiwan	1979	Tai (1979), Anonymous (1979)
431.	*Tradescantia fluminensis*	Wandering Jew	New Zealand	2006	Waipara (2006)
		Lythraceae (Loosestrife Family)			
432.	*Cuphea* sp.	Hawaiian Heather / Cigarette Plant	Minnesota, North Dakota	2006	Gulya *et al.* (2006)
		Thymelaeaceae (Mezereum Family)			
433.	*Daphne odora*	Winter daphne	Japan, New Zealand	2007, 1989	Kobayashi (2007); Pennycook (1989)
434.	*Edgeworthia papyrifera*	Chinese Paper Bush	Japan	2007	Kobayashi (2007)

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		Escalloniaceae (Cassia Family)			
435.	*Escallonia rubra*	Red claws/ Red Escallonia	New Zealand	1989	Pennycook (1989)
		Anacardiaceae (Cashew Family)			
436.	*Mangifera indica*	Mango	Japan	2018	Ajitomi *et al.* (2018)
437.	*Pistacia vera*	Pistachio	California	1994	Michailides and Morgan (1994)
		Mazaceae (Myzus Family)			
438.	*Mazus japonicus*	Japanese mazus	China	1979	Tai (1979)
439.	*Mazus stachydifolius*	Baby jump-up	China	1979	Tai (1979)
		Oxalidaceae (Wood Sorrel Family)			
440.	*Oxalis corniculata*	Creeping woodsorrel	China	1979	Tai (1979)
441.	*Oxalis repens*	Creeping woodsorrel	Taiwan	1979	Anonymous (1979)
		Cleomaceae (Spider flowers/plants/Weeds/Bee plants)			
442.	*Pedicellaria viscida*	Sea urchins	Taiwan	1977	Anonymous (1979)
		Pennantiaceae			
443.	*Pennantia baylisiana*	Three Kings kaikōmako	New Zealand	1996	McKenzie and Dingley (1996)
		Salicaceae (Willow Family)			
444.	*Populus Canadensis*	Canadian poplar	China	2002	Chen (2002)
		Menispermaceae (Moonseed Family)			
445.	*Stephania hernandifolia*	Tape Vine	China	1979	Tai (1979)
446.	*Stephania japonica*	Snake vine	Taiwan	1979	Anonymous (1979)

*Source: Systematic Botany and Mycology Laboratory: https://nt.arsgrin.gov/fungal data bases/new_all View. cfm?

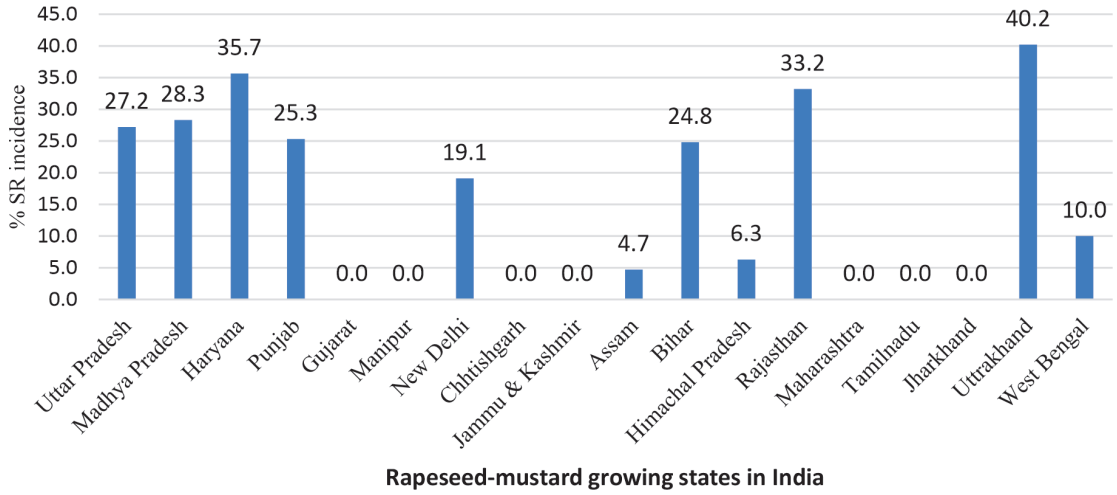

Fig. 1. Incidences of *Sclerotinia* stem rot on rapeseed-mustard in various states of India

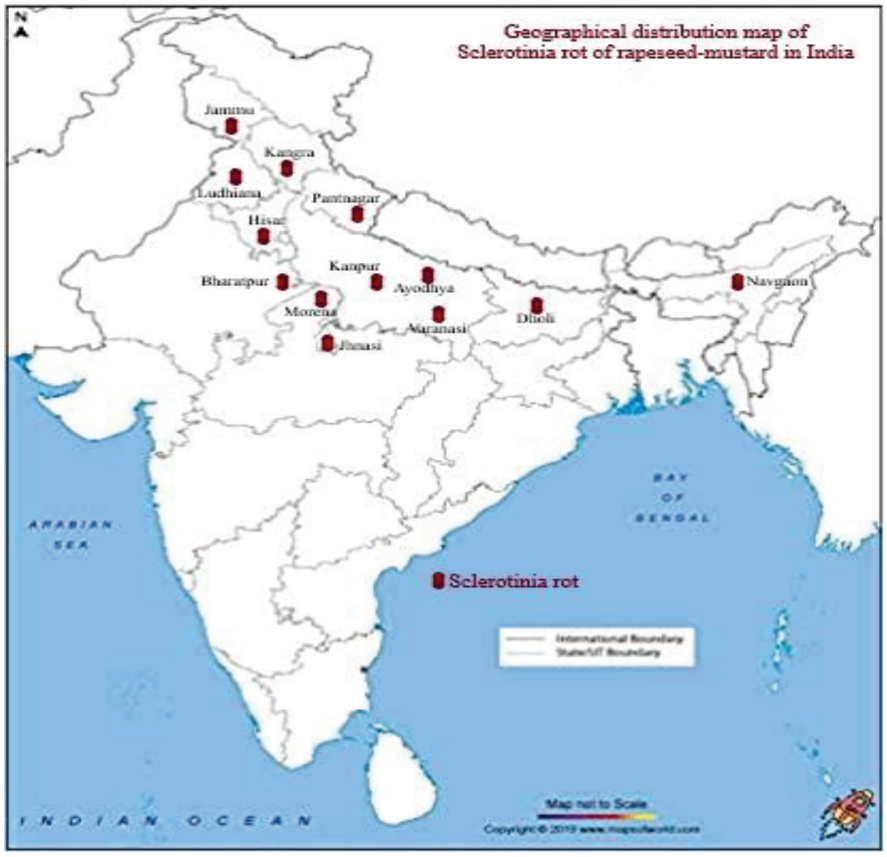

Fig. 2. Geographical distribution map of Sclerotinia stem rot on rapeseed-mustard in India

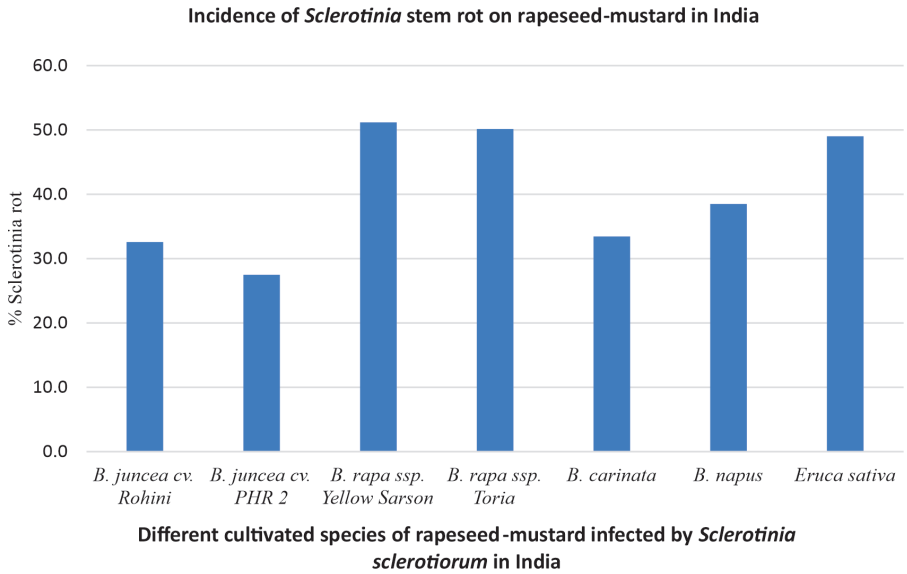

Fig. 3. Incidence of Sclerotinia stem rot on different cultivated *Brassica* species in India

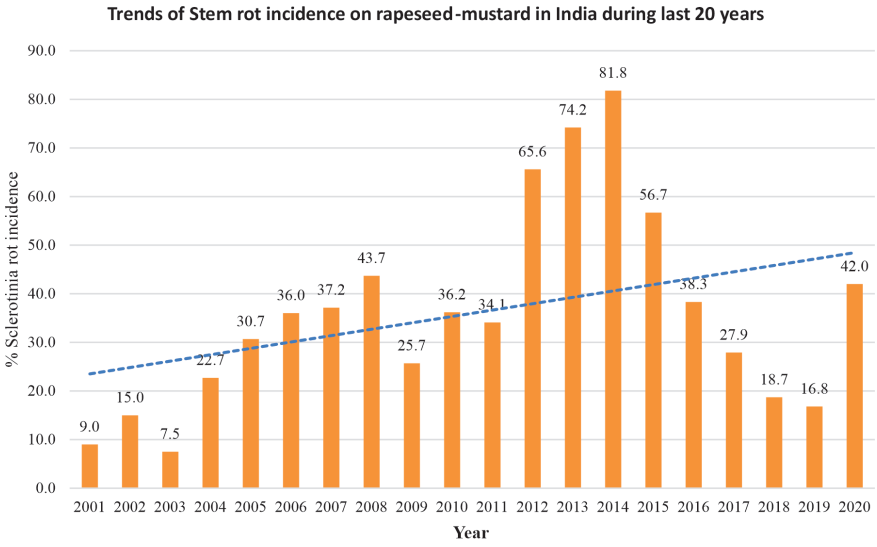

Fig. 4. Trends of *S*clerotinia stem rot incidence in India during last 20 years

produce necrosis-and ethylene-inducing peptide 1-like proteins (NLPs) (Bashi *et al.,* 2010). These proteins elicit cell death in most dicots but very few monocots (Gijzen and Nürnberger, 2006). The NLPs cause necrosis by binding to a specific form of the membrane lipid glycosylinositol phosphorylceramid, wide spread among dicots but rare among monocots. One exception is the monocot *Phalaenopsis amabilisi*, NLP homologues, which both cause necrosis in *N. benthamiana*, is highly expressed during infection and inhibition of its expression is associated with a loss of pathogenicity on *B. napus* (Bashi *et al.,* 2010). However, its necrosis-inducing activity could not be replicated in a further study (Seifbarghi *et al.,* 2020).

Adding another layer of complexity to the role of NLPs in pathogenesis, they also contain a conserved peptide sequence that elicits an innate immune response in *Arabidopsis* mediated by the leucine-rich repeat (LRR) receptor-like protein RLP23 (Albert *et al.,* 2015), and plants that over-express RLP23 are more resistant to *S. sclerotiorum*. The conservation of NLPs among diverse microbes, including biotrophs, suggests that they may have important functions other than elicitation of necrosis, so they could perhaps behave as elicitors of broad-spectrum basal immunity (Raaymakers and Van den Ackerveken, 2016). Without knocking out the two *S. sclerotiorum* NLPs, it is not possible to determine whether their primary roles are physiological or associated only with their ability to induce necrosis in dicots. Another molecular determinant of the preference of *S. sclerotiorum* for dicot hosts could be oxalic acid. This compound is important for *S. sclerotiorum* pathogenicity on many hosts. Numerous monocot species produce proteins called germins in response to pathogen attack (Davidson *et al.,* 2009). A subclass of these exhibit oxalate oxidase activity and, when expressed in several dicots, can reduce susceptibility to *S. sclerotiorum* by metabolizing oxalic acid (Yang *et al.,* 2019). Perhaps part of the reason *S. sclerotiorum* is unable to parasitize most monocots is their innate ability to metabolize one of its main virulence determinants. The knocking out monocot oxalate oxidases followed by challenge with *S. sclerotiorum* has been suggested by Williams *et al.* (2011). Although *S. sclerotiorum* does not seem to be a parasite of most monocots, a recent study suggests that it can live endophytically in several of them (Tian *et al.,* 2020). When inoculated on to wheat seedling roots, *S. sclerotiorum* was able to grow inter-and intracellularly without causing any visible symptoms. Endophytic growth of *S. sclerotiorum* in wheat led to changes in gene expression reminiscent of the plant immune response to biotrophs. Jasmonic and abscisic acid-related genes were down regulated; where as salicylic acid-related genes were up-regulated.

Endophytic growth of *S. sclerotiorum* within monocots also enhanced resistance to several agriculturally relevant diseases, including wheat stripe rust and rice blast. This kind of alternative life

style was only previously documented in several species of *Colletotrichum* (Redman *et al.,* 2001). However, because this is only a recently appreciated phenomenon, it may well be common among phytopathogenic fungi. The fact that *S. sclerotiorum* was able to breach the cell wall of the monocots tested without causing necrosis suggests that the difference between *S. sclerotiorum* hosts and non-hosts is related to their cell death responses rather than any physical barriers they can put inplace. Perhaps one or more responses to *S. sclerotiorum* triggers of programmed cell death are conserved among dicots but absent in most monocots (Derbyshire *et al.,* 2022).

DISCUSSION

The crucifers stem rot incited by *Sclerotinia sclerotiorum* is a devastating fungal pathogen throughout the world and have been reported from all continents on more than 900 plant species, which causes enormous losses depending upon the time of its appearance, susceptible host and other favourable conditions. The pathogen has had a long history in the world and symptoms produced by this pathogen are being known by more than 60 names since it was discovered first time in 1837 (Bolton *et al.,* 2006). Libert (1937) was the first to name this pathogen as *Sclerotinia sclerotiorum* but used the binomial classification as *Peziza sclerotiorum* and Fuckel (Purdy, 1979) renamed it as *Sclerotinia libertiana*. The pathogen has specialization within the genus based on mycelial type, germination, mycelial interactions, various fungus structures, and the measurements of some of the structures including ascospores and apothecia. Only three species namely *S. minor, S. trifoliorum* and *S. sclerotiorum* (Bolton *et al.,* 2006) are known causing diseases on major crops. These species have been differentiated based on their host crops. The *S. sclerotiorum* is the most non-specific species occurring in both Gymnospermae and Angiospermae classes, *S. minor* only infects host crops in the Dicotyledonae and Monocotyledon subclasses of the division Spermatophyta within the Angiospermae class and *S. trifoliorum* has a host range limited to forage legumes (Saharan and Mehta, 2008). The pathogen can be identified with its specific structures like apothecia, mycelium, and sclerotia, the overwintering structure. The sclerotia remain viable in the soil for many years. These sclerotia remain in the soil or on soil surface, under favourable environmental conditions with a susceptible host, may germinate and cause infection on the host myceliogenically or carpogenically. Disease symptoms produced by the pathogen may vary by host species but typically begin with water-soaked lesions in the lower portion of the stem as well as through ascospores produced in the apothecia.

Worldwide distribution along with over 900 species of hosts continues to make it difficult in developing disease-forecasting models since the pathogen causes disease in all most all crops, survive in very adverse conditions for longer period and initiate the disease in next season. With basic knowledge of the signs and symptoms of the fungus, along with awareness of the favorable environmental conditions and life cycles of the host species, the prevention of *Sclerotinia sclerotiorum* will be possible. With the familiarity of field history and disease dispersion methods, the specific techniques should be implemented for an integrated disease management program including cultural, chemical, and biological control methods. The present manuscript has provided the entire list of host range where the pathogen causes the disease and the management of the disease can be done effectively keeping in view the crops being grown or have grown in the past.

The present review reveals that pathogen *Sclerotinia sclerotiorum* appears to be among the most non-specific, omnivorous and successful plant pathogen. The literature compiled so far reveals that susceptible hosts of this pathogen are scattered throughout the world published in numerous articles/ scientific literature. Partyka and Mai (1962) indicated that 172 species from 118 genera in 37 plant families are known to be susceptible hosts. Later on Farr *et al.* (1989) listed 148 genera of plants that are susceptible to *S. sclerotiorum.* Schwartz (1977) reported a host range of 374 plant species from 237 genera in 65 families. Purdy (1979) referred to a compilation by P.B. Adams that included 361 species from 225 genera in 64 families. The most recent host index for *S. sclerotiorum* prepared by Boland and Hall (1994) contains 42 subspecies or varieties, 408 species, 278 genera and 75 families of plants. The present findings revealed the host range has been increased to more than 900 plant species comprising of 98 families belonging to 441 plant genera.

REFERENCES

Aban, C.L., Taboada, G., Spedaletti, Y., Aparicio, M., Curti, R.N., Casalderrey, N.B., Maggio, M.E., Chocobar, M.O., Salgado, M. and Galvan, M.Z. (2018). Molecular, morphological and pathogenic diversity of *Sclerotinia sclerotiorum* isolates from common bean (*Phaseolus vulgaris*) fields in Argentina. *Plant Pathol.* **67:** 1740-1748.

Adikaram, N.K.B. and Yakandawala, D.M.D. (2020). A check list of plant pathogenic fungi and oomycota in Sri Lanka. *Ceylon J. Sci.* **49:** 93-123.

Ahmed, A.U. and Akhond, M.A.Y. (2015). First report of *Sclerotinia* rot caused by *Sclerotinia sclerotiorum* on *Lens culinaris* in Bangladesh. *New Dis. Rep.***31**: 23.

Ajitomi, A., Takushi, T., Ooshiro, A., Yamashiro, M. and Taba, S. (2018). First report of Sclerotinia rot of mango caused by *Sclerotinia sclerotiorum* in Japan. *J. Gen. Plant Pathol.* **84:** 70-72.

Akem, C.N. and Dashiell, K.E. (1992). Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* on soybeans in Nigeria. *Pl. Dis.* **76**: 101.

Alam, M.W., Rehman, A., Malik, A., Mehboob, S., Sarwar, M. and Muhammad, S. (2021). First report of white mould of potato caused by *Sclerotinia sclerotiorum* in Pakistan. *J. Plant Pathol.* **103:** 669.

Albert, I., Böhm, H., Albert, M., Feiler, C.E., Imkampe, J., Wallmeroth, N.B.C., Raaymakers, T.M., Oome, S., Zhang, H., Krol, E., Grefen, C., Gust, A.A., Chai, J., Hedrich, R., van den Ackerveken, G. and Nurnberger, T. (2015). An RLP23–SOBIR1–BAK1 complex mediates NLP- triggered immunity. *Nat. Pl.* **1**: 15140.

Alfieri Jr, S.A., Langdon, K.R., Wehlburg, C. and Kimbrough, J.W. (1984). *Index of plant diseases in Florida (Revised).* Division of Plant Indexing, Department of Agriculture and Consumer Services, Florida. **11**: 1-389.

Alvarez, M.G. (1976). Primer catalogo de enfermedades de plantas Mexicanas. *Fitofilo* **71**: 1-169.

Anonymous (1960). *Index of plant diseases in the United States.* USDA Agricultural Handbook **165**: 1-531.

Anonymous (1979). *List of plant diseases in Taiwan.* Plant Protection Society, Republic of China, pp 404.

Arzanlou, M. and Dokhanchi, H. (2013). Morphological and molecular characterization of *Diplodia seriata*, the causal agent of canker and twig dieback disease on mulberry in Iran. *Ar. Phytopathol. Pflanzen.* **46:** 682-694.

Backhouse, D. and Willetts, H.J. (1984). A histochemical study of *Botrytis cinerea* and *Botrytis fabae*. *Can. J. Microbiol.* **30**: 171-178.

Bashi, Z.D., Hegedus, D.D., Buchwaldt, L., Rimmer, S.R. and Borhan, M.H. (2010). Expression and regulation of *Sclerotinia sclerotiorum* necrosis and ethylene-inducing peptides (NEPs). *Mol. Plant Pathol.* **11**: 43-53.

Baysal-Gurel, F., Bozan, O., Oneleg, N. and Cinar, A. (2012). First report of Sclerotinia stem and twig blight caused by *Sclerotinia sclerotiorum* on sour orange root stock in Turkey. *New Dis. Rep.* **26:** 24

Beute, M.K., Porter, D.M. and Hadley, B.A. (1975). Sclerotinia blight of peanut in North Carolina and Virginia and its chemical control. *Pl. Dis. Rep.* **59**: 697-700.

Bienapfl, J.C., Malvick, D.K. and Percich, J.A. (2011). Specific molecular detection of *Phytophthora sojae* using conventional and real-time PCR. *Fungal Biol.* **115**: 733-740.

Bisby, G.R. (1938). The fungi of Manitoba and Saskatchewan. National Research Council of Canada, Ottawa, Onterio, pp 200.

Blanco-Meneses, M. and Ristaino, J.B. (2011). Detection and quantification of *Peronospora tabacina* using a real-time polymerase chain reaction assay. *Pl. Dis.* **95**: 673-682.

Bobev, S. (2009). Reference guide for the diseases of cultivated plants (Russian). Makros Publication, pp 466.

Boewe, G.H. (1964). Some plant diseases new to Illinois. *Pl. Dis. Rep.* **48**: 866-870.

Boland, G.J. and Hall, R. (1994). Index of plant hosts of *Sclerotinia sclerotiorum*. *Can. J. Plant Pathol.* **16**: 93-108.

Bolton, M. D., Thomma, B. P. H. J. and Nelson, B. D. (2006). Pathogen profile: *Sclerotinia sclerotiorum* (Lib.) de Bary, biology and molecular traits of a cosmopolitan pathogen. *Mol. Plant Pathol.* **7:** 1-16.

Borah, T.R., Dutta, S. and Barman, A.R. (2018). First report of *Sclerotinia sclerotiorum* on *Mimosa pudica* in India. *New Dis. Rep.* **38**: 14.

Borrelli, N.P., Papone, M.L., Moreno, M.V., Stenglein, S., Stancanelli, S., Wright, E.R., Hagiwara, J.C. and Rivera, M. (2020). First report of basal rot caused by *Sclerotinia sclerotiorum* on *Calibrachoa hybrida*. *Pl. Dis.* **104:** 3254.

Bradley, C.A., del Rio, L.E. and Johnson, B.L. (2003). First report of *Sclerotinia sclerotiorum* on niger (*Guizotia abyssinica*). *Pl. Dis.* **87:** 602.

Brien, R.M. (1932). Host range of *Sclerotinia sclerotiorum* in New Zealand. *New Zealand J. Agric.* **44:** 127-129.

Brien, R.M. (1946). Second supplement to "A list of plant diseases recorded in New Zealand". *New Zealand J. Sci. Technol.* **28**: 221-224.

Burger, O.F. (1913). Lettuce drop. *Florida Agric. Exp. St. Bull.* **116**: 8.

Bustos-Lopez, M.P., Spadaro, D. and Gullino, M.L. (2015). First report of *Sclerotinia sclerotiorum* causing post harvest Sclerotinia rot on highbush blue berry in Europe. *Pl. Dis.* **99:** 1648.

Carbone, I. and Kohn, L.M. (1993). Ribosomal DNA sequence divergence within internal transcribed spacer I of the *Sclerotinia*ceae. *Mycologia* **85**: 415-427.

Casieri, L., Hofstetter, V., Viret, O. and Gindro, K. (2009). Fungal communities living in the wood of different cultivars of young *Vitis vinifera* plants. *Phytopathol. Med.* **48**: 73-83.

Chang, S.W. and Kim, S.K. (2003). First report of Sclerotinia rot caused by *Sclerotinia sclerotiorum* on some vegetable crops in Korea. *Plant Pathol. J.* **19**: 79-84.

Chapara, V., Chittem, K. and Mendoza, L.E.R. (2018). First report of white mold caused by *Sclerotinia sclerotiorum* on faba beans in North Dakota. *Pl. Dis.* **102:** 1669.

Chen, M.M. (2002). *Forest fungi phytogeography: Forest fungi phytogeography of China, North America, and Siberia and international quarantine of tree pathogens.* Pacific Mushroom Research and Education Center, Sacramento, California, pp 469.

Chen, W., Schatz, B., Henson, B., McPhee, K.E. and Muehlbauer, F.J. (2006). First report of Sclerotinia stem rot of chickpea caused by *Sclerotinia sclerotiorum* in North Dakota and Washington. *Pl. Dis.* **90**: 114.

Cheremisinov, N.A. (1951). Michurin teaching-a basis for control measures for the diseases of Kok-Saghyz. *Nature* **6**: 30-38.

Chlebicki, A. and Chmiel, M.A. (2006). Microfungi of *Carpinus betulus* from Poland I. Annotated list of microfungi. *Acta Mycol.* **41**: 253-278.

Cho, W.D. and Shin, H.D. (2004). List of plant diseases in Korea. Fourth edition. *Korean Soc. Plant Pathol.,* pp. 1-779.

Choi, H.W., Hong, S.K., Kim, J.S., Lee, Y.K., Yang, D.C. and Shin, Y.S. (2020). First report of *Sclerotinia sclerotiorum* causing *Sclerotinia* rot on *Codonopsis lanceolata* in Korea. *Pl. Dis.* **104:** 1863.

Choi, I.Y., Kim, J., Lee, W.H., Cho, S.E. and Shin, H.D. (2017b). First report of Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* on Chinese chives in Korea. *Pl. Dis.* **101:** 1953.

Choi, I.Y., Kim, J.H., Kim, B.S., Park, M.J. and Shin, H.D. (2016). First report of Sclerotinia stem rot of fennel caused by *Sclerotinia sclerotiorum* in Korea. *Pl. Dis.* **100:** 223.

Choi, I.Y., Kim, J.H., Kim, J., Han, K.S., Galea, V. and Shin, H.D. (2017a). Confirmation of *Sclerotinia sclerotiorum* as the causal agent of stem rot of stock in Korea. *Australasian Pl. Dis. Not.* **12**: 22.

Conners, I.L. (1967). *An annotated index of plant diseases in Canada and fungi recorded on plants in Alaska, Canada and Greenland.* Department of Agriculture, Research Branch Canada. **1251**: 1-381.

Cook, G.E., Steadman, J.R. and Kerr, E.D. (1972). Epidemiology of white mold in western Nebraska. *Phytopathology* **62**: 1107.

Cook, R.P. and Dubé, A.J. (1989). Host-pathogen index of plant diseases in South Australia. South Australian Department of Agriculture, pp. 1-142.

Corato, U. and de Baviello, G. (2000). Occurrence of *Sclerotinia sclerotiorum* on *Brassica carinata* in Southern Italy (Basilicata). *Inform. Fitopatol.* **50**: 61-63.

Cother, E.J. (2000). Pathogenicity of *Sclerotinia sclerotiorum* to *Chrysanthemoides monilifera* ssp. *rotundata* (bitou bush) and selected species of the coastal flora in eastern Australia. *Biol. Cont.* **18**: 10-17.

Crous, P.W., Phillips, A.J.L. and Baxter, A.P. (2000). *Phytopathogenic fungi from South Africa*. University of Stellenbosch, Department of Plant Pathology Press, pp. 358.

Csullog, K., Toth, B., Lelesz, E.J., Feher, M., Virag, C.I., Kutasy, E., Jasz, B., Tarcali, G. and Biro, G. (2022). First report of *Sclerotinia sclerotiorum* on watercress (*Nasturtium officinale*) in an aquaponic system in Hungary. *Pl. Dis.* **106:** 767.

Davidson, R.M., Reeves, P.A., Manosalva, P.M. and Leach, J.E. (2009). Germins: a diverse protein family important for crop improvement. *Pl. Sci.* **177**: 499-510.

Davies, J.M.L., Gladders, P., Young, C., Dyer, C., Hiron, L., Locke, T., Lockley, D., Ottway, C., Smith, J., Thorpe, G. and Watling, M. (1999). Petal culturing to forecast *Sclerotinia* stem rot in winter oilseed rape: 1993–1998. *Asp. App. Biol.* **56**: 129-134.

Dennis, R.W.G. (1956). A revision of the British Helotiaceae in the herbarium of the Royal Botanic Garden, Kew, with notes of related European species. *Mycol. Paper* **62**: 1-206.

Dennis, R.W.G. (1978). British Ascomycetes. *J. Cramer*, pp. 585.

Dennis, R.W.G. (1986). Fungi of the Hebrides. *Royal Botanical Gardens*, Kew, pp. 383.

Derbyshire, M.C. and Denton-Giles, M. (2016). The control of Sclerotinia stem rot on oilseed rape (*Brassica napus*): current practices and future opportunities. *Plant Pathol.* **65:** 859-877.

Derbyshire, M.C., Newman, T.E., Khentry and Taiwo, A.O. (2022). Pathogen profile: The evolutionary and molecular features of the broad host range plant pathogen *Sclerotinia sclerotiorum. Mol. Plant Pathol.* doi: 10.1111/ mpp.13221.

Dickson, J.G. (1930). Studies on *Sclerotinia Sclerotiorum* (Lib) de Bary. *Ph. D Thesis*, Cornell University, Ithaca, New York, 136 pp.

Ding, L.L., Zhao, S.F., Zhang, X.K., Yao, Z.Q. and Zhang, J. (2012). Sclerotinia rot of broomrape (*Orobanche cumana*) caused by *Sclerotinia sclerotiorum* in China. *Pl. Dis.* **96**: 916.

Dingley, J.M. (1969). Host plants, pathogens, and physiological diseases. *New Zealand Dep. Sci. Ind. Res. Bull.* **192**: 10-87.

Dowson, W.J. (1926). A blossom wilt and stem rot of cultivated antirrhinums and schizanthus due to *Sclerotinia sclerotiorum* (Lib.) Massee. *J. Royal Horticul. Soc.* **51**: 252-265.

Duarte, L.L. and Barreto, R.W. (2009). First report of stem rot of *Helichrysum bracteatum* by *Sclerotinia sclerotiorum* in Brazil. *Australasian Pl. Dis. Not.* **4:** 100-101.

Dutta, S., Ghosh, P.P. and Kuiry, S.P. (2009). Stem rot, a new disease of potato in West Bengal, India. *Australasian Pl. Dis. Not.* **4:** 80-81.

Ellett, C.W. (1957). Diseases not previously reported in Ohio. *Pl. Dis. Rep.* **41**: 369-371.

Embaby, E.M. (2007). *Pestalotia* fruit rot on strawberry plants

in Egypt. *Egyptian J. Phytopathol.* **35**: 99-110.

Ericksson, J. (1880). Om Klofverrotan med sarskildt afseende pa dess upptradante I vart land under aren 1878-1879. *Kgl Landtbruks Akad Handl Tidskr.* **19**: 28-42.

Farr, D.F., Bills, G.F., Chamuris, G.P. and Rossman, A.Y. (1989). Fungi on plants and plant products in the United States. APS, St. Paul, MN, pp. 1252.

Ferrada, E.E., Diaz, G.A., Zoffoli, J.P. and Latorre, B.A. (2014). First report of blossom blight caused by *Sclerotinia sclerotiorum* on Japanese plum, nectarine, and sweet cherry orchards in Chile. *Pl. Dis.* **98:** 695.

Ficke, A., Grieu, C., Brurberg, M.B. and Brodal, G. (2018). The role of precipitation, and petal and leaf infections in Sclerotinia stem rot of spring oilseed *Brassica* crops in Norway. *Eur. J. Plant Pathol.* **152:** 885-900.

Firman, I.D. (1972). A list of fungi and plant parasitic bacteria, viruses and nematodes in Fiji. *Phytopathol. Paper.* **15**: 1-36.

Fogliata, G.M., Ramallo, N.V. and de Ploper, L.D. (1999). Shoot wilt in lemons caused by *Sclerotinia sclerotiorum* (*Sclerotinia* twig blight). *Ad. Agroind.* **20**: 28-30.

Foister, C.E. (1961). The economic plant diseases of Scotland. *Tech. Bull. Dep. Agric. Fish. Scotland.* **1**: 1-210.

Folk, G. and Tusnadin, C.K. (1985). A new disease of gerbera in Hungary Sclerotinia wilt. *Novenyvedelem,* **21**: 557-561.

French, A.M. (1987). *California plant disease host index*. Part 1: Fruit and nuts. California Dep. Food Agric.*,* pp. 39.

French, A.M. (1989). *California plant disease host index*. California Dep. Food Agric., pp. 394.

Fuckel, L. (1870). Symbolic mycologicae. Beitrage zur Kenntniss der Rheinischen Pilze. I Jhrb. *Nassauischen Vercins Naturk* **23**: 1-459.

Gaetan, S. and Madia, M. (2005). Occurrence of stem rot on canola caused by *Sclerotinia sclerotiorum* in Argentina. *Pl. Dis.* **89**: 530.

Garfinkel, A.R. (2021). First report of *Sclerotinia sclerotiorum* causing stem canker on *Cannabis sativa* in Oregon. *Pl. Dis.* **105:** 2245.

Gargouri, S., Berraies, S., Gharbi, M.S., Paulitz, T., Murray, T.D. and Burgess, L.W. (2017). Occurrence of *Sclerotinia* stem rot of fenugreek caused by *Sclerotinia trifoliorum* and *S. sclerotiorum* in Tunisia. *Eur. J. Forest Pathol.* **149**: 587-597.

Garibaldi, A., Bertetti, D., Matic, S., Pensa, P. and Gullino, M.L. (2020). First report of white mold caused by *Sclerotinia sclerotiorum* on everlasting flower in Italy. *Pl. Dis.* **104:** 3078.

Garibaldi, A., Bertetti, D., Ortu, G. and Gullino, M.L. (2015). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on *Gaillardia x grandiflora* in Northern Italy. *Pl. Dis.* **99**: 729.

Garibaldi, A., Bertetti, D., Pensa, P. and Gullino, M.L. (2009). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on *Petunia* x *hybrida* in Italy. *Pl. Dis.* **93**: 1353.

Garibaldi, A., Bertetti, D., Pensa, P., Matic, S. and Gullino, M.L. (2017). First report of white mould caused by *Sclerotinia sclerotiorum* on rosemary in Italy. *J. Plant Pathol.* **99:** 543.

Garibaldi, A., Bertetti, D., Pensa, P., Matic, S. and Gullino, M.L. (2019). First report of white mold caused by *Sclerotinia sclerotiorum* on watercress (*Nasturtium officinale*) in Italy. *Pl. Dis.* **103:** 152.

Garibaldi, A., Bertetti, D., Poli, A. and Gullino, M.L. (2011). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on fan columbine (*Aquilegia flabellata*) in Italy. *Pl. Dis.* **95**: 1481.

Garibaldi, A. and Gullino, G. (1976). Diseases of flower and ornamental plants new or little known in Italy. III Root and vascular diseases. *Agricul. Italy (Pisa*). **105**: 273-284.

Garibaldi, A., Minuto, A. and Gullino, M.L. (2005a). First report of Sclerotinia stem rot and watery soft rot caused by *Sclerotinia sclerotiorum* on sand rocket (*Diplotaxis tenuifolia*) in Italy. *Pl. Dis.* **89:** 1241.

Garibaldi, A., Minuto, A. and Gullino, M.L. (2005b). First report of white mold caused by *Sclerotinia sclerotiorum* on *Rosmarinus officinalis* ‹prostratus› in Italy. *Pl. Dis.* **89:** 1016.

Garibaldi, A., Minuto, A. and Gullino, M.L. (2007a). First report of white mold caused by *Sclerotinia sclerotiorum* on *Iberis sempervirens* in Italy. *Pl. Dis.* **91:** 464.

Garibaldi, A., Minuto, A. and Gullino, M.L. (2007b). First report of white mold caused by *Sclerotinia sclerotiorum* on *Oreganum vulgare* and *Taraxacum officinale* in Italy. *Pl. Dis.* **91**: 1360.

Garibaldi, A., Minuto, A. and Gullino, M.L. (2008a). First report of *Sclerotinia sclerotiorum* on *Calceolaria integrifolia* in Italy. *Pl. Dis.* **92:** 1133.

Garibaldi, A., Minuto, A., Pensa, P. and Gullino, M.L. (2008b). First report of *Sclerotinia sclerotiorum* on African Daisy (*Osteospermum* sp.) in Italy. *Pl. Dis.* **92**: 982.

Garibaldi, A., Pensa, P., Bertetti, D. and Guillno, M.L. (2008c). First report of white mold caused by *Sclerotinia sclerotiorum* on *Borago officinalis* in Italy. *Pl. Dis.* **92**: 1711.

Garibaldi, A., Pensa, P., Bertetti, D., Poli, A. and Gullino, M.L. (2013). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on Spearmint in Northern Italy. *Pl. Dis.* **97**: 1384.

Garibaldi, A., Pensa, P., Minuto, A. and Gullino, M.L. (2008d). First report of *Sclerotinia sclerotiorum* on *Lantana camara* in Italy. *Pl. Dis.* **92**: 1369.

Georghiou, G.P. and Papadopoulos, C. (1957). *A second list of Cyprus fungi*. Department of Agriculture, Government of Cyprus., pp. 38.

Ghasolia, R.P. and Shivpuri, A. (2004). Neem - a new host of *Sclerotinia sclerotiorum. J. Mycol. Plant Pathol.* **34**: 200-201.

Ghasolia, R.P., Shivpuri, A. and Bhargava, A.K. (2004). Some

common weed species as hosts for *Sclerotinia sclerotiorum*. *J. Mycol. Plant Pathol.* **34**: 670-671.

Gijzen, M., Nürnberger, T. (2006). Nep1-like proteins from plant pathogens: recruitment and diversification of the NPP1 domain across taxa. *Phytochemistry* **67**: 1800–1807.

Gilardi, G., Gullino, M.L. and Garibaldi, A. (2013). New disease of wild and cultivated rocket in Italy. *Acta Hortic.* **1005**: 569-572.

Gilbert, A.H. and Bennett, C.W. (1917). *Sclerotinia trifoliorum*, the cause of stem rot of clovers and alfalfa. *Phytopathology* **7**: 432-442.

Ginns, J.H. (1986). *Compendium of plant disease and decay fungi in Canada 1960-1980.* Agriculture Publication, Research Branch, Canada. **1813**: 416.

Gonzalez, V. and Tello, M.L. (2011). The endophytic mycota associated with *Vitis vinifera* in central Spain. *Fungal Diver.* **47**: 29-42.

Goos, R.D. (2010). *The mycota of Rhode Island: a checklist of the fungi recorded in Rhode Island (including lichens and myxomycetes)* Rhode Island Natural History Survey, **4:** 1-222.

Gorter, G.J.M.A. (1981). *Index of plant pathogens (II) and the diseases they cause in wild growing plants in South Africa.* Scientific Bulletin, Department of Agriculture and Fisheries, Republic South Africa. **398**: 1-84.

Gossen, B.D. and Howard, R.J. (2021). Symptoms and distribution of blossom blight in alfalfa seed production on the Canadian prairies. *Can. J. Plant Pathol.* **43:** 421-430.

Gourley, C.O. and Delbridge, R.W. (1972). *Sclerotinia sclerotiorum* on horsechestnut trees. *Can. J. Pl. Dis. Sur.* **52**: 97-98.

Grand, L.F. (1985). *North carolina plant disease index*. Technical Bulletin, Agricultural Research Servey, North Carolina. **240**: 1-157.

Greuter, W., Poelt, J. and Raimondo, F.M. (1991). A checklist of Sicillian fungi. *Bocconea,* **2**: 222.

Guan, Y.M., Ma, Y.Y., Zhang, L.L., Pan, X.X., Liu, N. and Zhang, Y.Y. (2022). Occurrence of *Sclerotinia sclerotiorum* causing Sclerotinia root rot on American ginseng in Northeastern China. *Pl. Dis.* **106:** 1518.

Gulya, T.J., Gesch, R.W., Bradley, C.A., del Rio, L.E. and Johnson, B.L. (2006). First report of *Sclerotinia sclerotiorum* infection on *Cuphea*. *Pl. Dis.* **90**: 1554.

Gulya, T.J., Ooka, J.J. and Mancl, M.K. (1985). Diseases of cultivated sunflower in Hawaii. *Pl. Dis.* **69**: 542.

Gulya, T.J., Woods, D.M., Bell, R. and Mancl, M.K. (1991). Diseases of sunflower in California. *Pl. Dis.* **75**: 572-574.

Gupta, A.K., Bashyal, B.M., Choudhary, R., Kumar, M. and Solanki, I.S. (2015). First report of Sclerotinia rot of pigeonpea caused by *Sclerotinia sclerotiorum* (Lib) de Bary in India. *Can. J. Plant Pathol.* **37:** 514-518.

Han, F., Huang, J., Lin, M. and Song, X. (2022). First report of *Sclerotinia sclerotiorum* on *Atractylodes lancea* in China. *J. Plant Pathol.* doi.org/10.1007/s42161-022-01190-3.

Han, I., Park, K., Lee, H., Lee, S.M., Shin, J., Choi, S.L. and Kim, J. (2020). First report of Sclerotinia rot in sword bean caused by *Sclerotinia sclerotiorum* in South Korea. *Pl. Dis.* **104:** 988.

Han, K.S., Kim, J.Y., Park, J.H. and Shin, H.D. (2013). First report of Sclerotinia stem rot of *Anemone* caused by *Sclerotinia sclerotiorum* in Korea. *Pl. Dis.* **97:** 997.

Han, K.S., Park, M.J., Park, J.H., Cho, S.E. and Shin, H.D. (2015). First report of Sclerotinia stem rot of *Ranunculus asiaticus* caused by *Sclerotinia sclerotiorum* in Korea. *Pl. Dis.* **99:** 1653-1654.

Hanif, S., Hafeez, R., Akram, W., Ashfaq, M. and Ali, A. (2016). First report of Sclerotinia fruit rot of *Citrus paradisi* caused by *Sclerotinia sclerotiorum* in Pakistan. *Pl. Dis.* **100:** 863.

Hansda, S., Ray, S.K., Dutta, S. and Khatua, D.C. (2014). *Sclerotinia* rot in West Bengal. *J. Mycopathol. Res.* **52**: 273-278.

Harter, L.L. and Zaumeyer, W.J. (1944). *A monographic study of bean diseases and methods for their control*. Technical Bulletin, US Department of Agriculture, **868:** 160.

Held, V.M. and Haenseler, C.M. (1953). Cross inoculation with New Jersey isolates of *Sclerotinia sclerotiorum, S. minor* and *S. trifoliorum*. *Pl. Dis. Rep.* **37:** 515-517.

Hellman, E.M., Koivunen, E.E. and Swett, C.L. (2022). First report of Sclerotinia fruit and crown rot caused by *Sclerotinia sclerotiorum* on short-day strawberry in Maryland. *Pl. Dis.* **106**: 764.

Hilton, S. (2000). Disease Highlights. Canadian Plant Disease Survey, Agriculture and Agri-Food, Canada **80**: 1-151.

Holcomb, G.E. (2005). First report of Sclerotinia stem rot and death of *Osteospermum* spp. hybrid cultivars caused by *Sclerotinia sclerotiorum* in Louisiana. *Pl. Dis.* **89**: 911.

Holcomb, G.E. (2006). First report of crown rot of *Gazania rigens* caused by *Sclerotinia sclerotiorum* in Louisiana. *Pl. Dis.* **90**: 1114.

Holevas, C.D., Chitzanidis, A., Pappas, A.C., Tzamos, E.C., Elena, K., Psallidas, P.G., Alivizatos, A.S., Panagopoulos, C.G., Kyriakopoulou, P.E., Bem, F.P., Lascaris, D.N., Velissariou, D.E., Vloutoglou, I., Analytis, S.C., Paplomatas, E.J., Aspromougos, J.S. and Varveri, C. (2000). Disease agents of cultivated plants observed in Greece from 1981 to 1990. Benaki Phytopathology Institute Kiphissia, Athens, **19**: 1-96.

Holst-Jensen, A., Kohn, L.M., Jakobsen, K.S. and Schumacher, T. (1997a). Molecular phylogeny and evolution of *Monilinia* (*Sclerotinia*ceae) based on coding and non-coding rDNA sequences. *Am. J. Bot.* **84**: 686-701.

Holst-Jensen, A., Kohn, L.M. and Schmacher, T. (1997b). Nuclear rDNA phylogeny of the *Sclerotiniaceae. Mycologia* **89**: 885-899.

Holst-Jensen, A., Vaage, M. and Schumacher, T. (1998). An approximation to the phylogeny of *Sclerotinia* and related genera. Nord. *J. Bot.* **18**: 705-719.

Holst-Jensen, A., Vralstad, T. and Schumacher, T. (2004). *Kohninia linnaeicola*, a new genus and species of the *Sclerotinia*ceae pathogenic to *Linnaea borealis*. *Mycologia* **96**: 135-142.

Horie, H. and Hoshi, H. (2002). First report of Sclerotinia rot of hybrid *Bouvardia* in Japan. *Ann. Rep. Kanto Tosan Pl. Prot. Soc.* **49**: 69-71.

Hu, J., Handique, U. and Norton, E.R. (2018). First report of Sclerotinia boll rot and stem blight of cotton in Arizona. *Pl. Dis.* **102:** 1663.

Isakeit, T., Woodward, J.E., Niu, C. and Wright, R.J. (2010). First report of Sclerotinia stem rot of canola caused by *Sclerotinia sclerotiorum* in Texas. *Pl. Dis.* **94**: 792.

Islam, M.M., Ferdous-E-Elahi and Khatun, F. (2019) First report of white mold caused by *Sclerotinia sclerotiorum* in red salvia (*Salvia splendens*) in Bangladesh. *Pl. Dis.* **103:** 2955.

Islam, M.R., Prova, A., Akanda, A.M. and Hossain, M.M. (2020). First report of white mould caused by *Sclerotinia sclerotiorum* on pea in Bangladesh. *J. Plant Pathol.* **102:** 941.

Jagger, I.C. (1913). The small lettuce *Sclerotinia* - an undescribed species. *Phytopathology* **3**: 74. (Abstr).

Jagger, I.C. (1920). *Sclerotinia minor* new species - the cause of a decay of lettuce, celery and other crops. *J. Agric. Res.* **20**: 331-334.

Jayawardena, R.S., Purahong, W., Zhang, W., Wubet, T., Li, X.H., Liu, M., Zhao, W., Hyde, K.D., Liu, L.H. and Yan, J. (2018). Biodiversity of fungi on *Vitis vinifera* L. revealed by traditional and high-resolution culture-independent approaches. *Fungal Diver.* **90**: 1-84.

Jones, E.S. (1923). Taxonomy of the *Sclerotinia* on *Helianthus annuus* L. *Phytopathology* **13**: 496.

Jorstad, I. (1963). Icelandic parasitic fungi apart from Uredinales. *Skr Norske Vidensk-Akad Oslo, Mat-Naturvidensk Kl,* **10**: 1-72.

Joshi, S.D. (1924). *The wilt disease of safflower*. Indian Botany Services, Department of Agriculture and Memories, **13**: 39-46.

Joshi, V. and Elmhirst, J.F. (1998). Diseases diagnosed on commercial crops in British Columbia. *Can. Pl. Dis. Sur.* **78**: 4-16.

Jovaisiene, Z. and Strukeinskas, M. (1990). Pathogenic micromycetes on umbelliferous plants (*Apiaceae Lindl*) in Lithuania. *Ekologija* **4**: 84-89.

Kadow, K.J. and Anderson, H.W. (1940). A study of horseradish diseases and their control. *Univ. Illinois Agric. Exp. St. Bull.* **469**: 531-583.

Kamran, M., Ehetisham-ul-Haq, M., Ullah, I., Ali, S., Idrees, M., Abbas, H. and Iqbal, M. (2019). First report of *Sclerotinia sclerotiorum* causing stem rot of eggplant (*Solanum melongena*) in Pakistan. *Pl. Dis.* **103:** 589.

Keay, M.A. (1939). A study of certain species of the genus *Sclerotinia*. *Ann. App. Biol.* **26**: 227-246.

Kelly, H.M., Srivastava, P., Paret, M.L., Dankers, H., Wright, D.L,, Marois, J.J. and Dufault, N. (2012). First report of Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* on *Brassica carinata* in Florida. *Pl. Dis.* **96:** 1581-1581.

Khan, M.F.R., Bhuiyan, M.Z.R., Chittem, K., Shahoveisi, F., Haque, M.E., Liu, Y., Hakk, P., Solanki, S., del Rio, L.E. and LaPlante, G. (2020). First report of *Sclerotinia sclerotiorum* causing leaf blight in sugar beet (*Beta vulgaris*) in North Dakota, USA. *Pl. Dis.* **104:** 1258.

Khan, M.F.R., Bhuiyan, Z.R., Liu, Y., Lakshman, D. and Bloomquist, M. (2021). First report of leaf blight of sugar beet (*Beta vulgaris*) caused by *Sclerotinia sclerotiorum* in Minnesota, USA. *Pl. Health Prog.* **22**: 149-150.

Khatua, D.C., Mondal, B. and Hansda, S. (2014). White rot of *Coreopsis drummondii* - a new record from West Bengal India. *J. Mycopathol. Res.* **52**: 157-158.

Kim, J.Y., Aktaruzzaman, M., Afroz, T., Hahm, Y.I. and Kim, B.S. (2014). The first report of postharvest stem rot of kohlrabi caused by *Sclerotinia sclerotiorum* in Korea. *Mycobiology,* **42:** 409-411.

Kim, K.M., Won, G.Y. and Choi, I.Y. (2016). First report of Sclerotinia stem rot of marshmallow caused by *Sclerotinia sclerotiorum* in Korea. *Pl. Dis.* **100**: 858.

Kinghorn, W.J. (1947). *Report of the Director of Agriculture*. Department of Agriculture and Fisheries**,** Bermuda, pp. 1-14.

Kobayashi, T. (2007). Index of fungi inhabiting woody plants in Japan, Host, Distribution and Literature. Zenkoku-Noson-Kyoiku Kyokai Publishing Co., Ltd., pp. 1227.

Koehler, A. and Shew, H. (2014). First report of stem rot of stevia caused by *Sclerotinia sclerotiorum* in North Carolina. *Pl. Dis.* **98:** 1433.

Kohn, L.M. (1979a). A monographic revision of the genus *Sclerotinia*. *Mycotaxon* **9**: 365-444.

Kohn, L.M. (1979b). Delimitation of the economically important plant pathogenic *Sclerotinia* species. *Phytopathology* **69**: 881-886.

Kohn, L.M., Petsche, D.M., Bailey, S.R., Novak, L.A. and Anderson, J.B. (1988). Restriction fragment length polymorphisms in nuclear and mitochondrial DNA of *Sclerotinia* species. *Phytopathology* **78**: 1047-1951.

Koike, S.T. (1997). Occurrence of stem and crown rot of *Gaillardia grandiflora* caused by *Sclerotinia sclerotiorum* in California. *Pl. Dis.* **81**: 1334.

Koike, S.T., Daugovish, O. and Downer, J.A. (2006). Sclerotinia petiole and crown rot of celery caused by *Sclerotinia minor* in California. *Pl. Dis.* **90**: 829.

Korf, R.P. and Dumont, K.P. (1972). Whetzelinia, a new generic name for *Sclerotinia sclerotiorum* and *Sclerotinia tuberosa*. *Mycologia* **64**: 248-251.

Kowalik, M., Bonio, J. and Duda-Franiak, K. (2015). Micromycetes on ericaceous plant leaves. *Acta Mycol.* **50(1):** 1055.

Kreitlow, K.W. (1949). *Sclerotinia trifoliorum*, a pathogen of ladino clover. *Phytopathology* **39**: 158-166.

Kropf, S.M., Putnam, M.L., Serdani, M., Twomey, M.C., Woods, J.L. and Gent, D.H. (2012). *Sclerotinia* wilt of hop (*Humulus lupulus*) caused by *Sclerotinia sclerotiorum* in the Pacific Northwest United States. *Pl. Dis.* **96**: 583.

Kumar, P., Sharma, S., Singh, R., Singh, P. and Kumar, A. (2022). First report of *Sclerotinia sclerotiorum* causing white rot of marigold in Punjab, India. *J. Plant Pathol.* **104:** 435.

Kurt, S., Uysal, A., Kara, M., Soylu, S. and Soylu, E.M. (2017a). First report of stem rot disease of parsley caused by *Sclerotinia sclerotiorum* in Turkey. *J. Plant Pathol.* **99(1):** 301.

Kurt, S., Uysal, A., Kara, M., Soylu, S. and Soylu, E.M. (2017b). Natural infection of potato by *Sclerotinia sclerotiorum* causing stem rot disease in Turkey. *Australasian Pl. Dis. Not.* **12**: 39.

Lahoz, E., Caiazzo, R., Carella, A. and Cozzolino, E. (2007). First report of *Sclerotinia sclerotiorum* on Buckwheat (*Fagopyrum esculentum*) in Italy. *Pl. Dis.* **91**: 1519.

Latorre, B.A. and Guerrero, M.J. (2001). First report of shoot blight of grapevine caused by *Sclerotinia sclerotiorum* in Chile. *Pl. Dis.* **85:** 1122.

Lee, J.H., Kwon, Y.H., Kwack, Y.B. and Kwak, Y.S. (2015). Report of postharvest rot of kiwifruit in Korea caused by *Sclerotinia sclerotiorum*. *Int. J. Food Microbiol.* **206**: 81-83.

Lenne, J.M. (1990). World list of fungal diseases of tropical pasture species. *Phytopathol. Paper* **31**: 1-162.

Leyronas, C., Troulet, C., Duffaud, M., Villeneuve, F., Benigni, M., Leignez, S. and Nicot, P.C. (2018). First report of *Sclerotinia subarctica* in France detected with a rapid PCR-based test. *Can. J. Plant Pathol.* **40:** 248-253.

Li, G.Q., Wang, D.B., Jiang, D.H., Huang, H.C. and Laroche, A. (2000). First report of *Sclerotinia navalis* on lettuce in central China. *Mycol. Res.* **104**: 232-237.

Li, H. and Fu, C. (1981). Studies on the Sclerotinial rot of soybean. *Acta Phytopathol. Sin.* **11**: 19-24.

Liebert, M.A. (1837). Plante crytogamicae arduennae (Exsiccate) no. 326.

Liu, Q.L., Li, G.Q., Li, J.Q. and Chen, S.F. (2016). *Botrytis eucalypti*, a novel species isolated from diseased *Eucalyptus* seedlings in South China. *Mycol. Prog.* **15**: 1057-1079.

Lu, C.H., Liu, J.Y., Lin, Z.L., Zhen, A.Z., Xia, Z.Y. and Qin, X.Y. (2020a). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on oriental tobacco in the Yunnan Province of China. *Pl. Dis.* **104**: 1867.

Lu, P.K., Lin, R.J., Hsieh, C.M., Chen, Y.H. and Hsieh, W.T. (2020b). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on *Salvia miltiorrhiza* in Taiwan. *Pl. Dis.* **104**: 2523.

Luong, T.M., Huynh, L.M.T., Le, T.V., Burgess, L.W. and Phan, H.T. (2010). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* in Quang Nam, Vietnam. *Australasian Pl. Dis. Not.* **5**: 42-44.

Mahalingam, T., Guruge, B.M.A., Somachandra, K.P., Rajapakse, C.S. and Attanayake, R.N. (2017). First report of white mold caused by *Sclerotinia sclerotiorum* on cabbage in Sri Lanka. *Pl. Dis.* **101:** 249.

Mahdikhani, M. and Aghaalikhani, A. (2017). First report of *Sclerotinia sclerotiorum* causing Sclerotinia rot on *Lens culinaris* in west of Iran. *J. Plant Pathol.* **99:** 296.

Marin, M.V. and Peres, N.A. (2020). First report of *Sclerotinia sclerotiorum* causing strawberry fruit rot in Florida. *Pl. Dis.* **104:** 3250.

Martinez de la Parte, E., Trujillo, M., Cantillo-Perez, T. and Garcia, D. (2013). First report of white mould of beans caused by *Sclerotinia sclerotiorum* in Cuba. *New Dis. Rep.* **27**: 5.

Masalab, N.A. (1938). Diseases of medicinal and of some industrial plants by species of *Sclerotinia*. *Sov. Bot.* **6**: 41-43.

Matheron, M.E. and Porchas, M. (2000). First report of stem and crown rot of garbanzo caused by *Sclerotinia minor* in the United States and by *Sclerotinia sclerotiorum* in Arizona. *Pl. Dis.* **84**: 1250.

McKenzie, D.L. and Morrall, R.A.A. (1975). Faba bean diseases in Saskaatchewan in 1973. *Canadian Pl. Dis. Sur.* **55**: 1-7.

McKenzie, E.H.C. and Dingley, J.M. (1996). New plant disease records in New Zealand: miscellaneous fungal pathogens III. *New Zealand J. Bot.* **34**: 263-272.

McKenzie, E.H.C. and Johnston, P.R. (1999). New records of phytopathogenic fungi in the Chatham Islands, New Zealand. *Australasian Plant Pathol.* **28:** 131-138.

Mederick, F.M. and Piening, L.J. (1982). *Sclerotinia sclerotiorum* on oil and fibre flax in Alberta. *Can. Pl. Dis. Sur.* **62**: 11.

Meena, P.D., Rai, P.K. and Saharan, G.S. (2022). Geographical distribution and severity of rapeseed-mustard diseases under changing climatic scenario in India. ICAR-Directorate of rapeseed-mustard, Sewar, Bharatpur, pp. 44.

Mendes, M.A.S., da Silva, V.L., Dianese, J.C., Ferreira, M.A.S.V., dos Santos, C., Urben, A.F., Castro, C. and Gomes, N.E. (1998). Fungos em Plants no Brasil. *Embrapa-SPI/Embrapa-Cenargen, Brasilia*, pp. 555.

Michailides, T.J. and Morgan, D.P. (1994). Occurrence of Sclerotinia and Botrytis shoot blights on *Pistachio* in California. *Pl. Dis.* **78**: 641.

Miller, J.W. (1991a). *Bureau of Plant Pathology.* Triology Technical Report, Division of Plant Industry, Florida. **30:** 1-2.

Miller, J.W. (1991b). *Bureau of Plant Pathology*. Triology

Technical Report, Division of Plant Industry, Florida. **30**: 1-3.

Minuto, A., Pensa, P., Minuto, G. and Garibaldi, A. (2004). *Sclerotinia sclerotiorum* agent of stem rot on time (*Thymus citriodorus*) and common sage (*Salvia officinalis*). *Informatore Fitopatologico* **54**: 36-39.

Minuto, A., Pensa, P. and Garibaldi, A. (2005b). Attacks of *Sclerotinia sclerotiorum* on *Rosmarinus officinalis* L var. *prostratus* hort. in Italy. *Informatore Fitopatologico* **55**: 50-52.

Minuto, A., Pensa, P., Rapa, B. and Garibaldi, A. (2005a). Basal and foliar rot of wild rocket [*Diplotaxis tenuifolia* (L) DC] caused by *Sclerotinia sclerotiorum* (Lib) de Bary in Northern Italy. *Informatore Fitopatologico* **55**: 43-45.

Mohan, L. (1994). *Sclerotinia* rot in rosemary. *Indian Phytopathol* **47:** 443.

Mondal, B., Khatua, D.C., Hansda, S. and Sharma, R. (2015). Addition to the host range of *Sclerotinia sclerotiorum* in West Bengal. *Sch. Acad. J. Biosci.* **3(4):** 361-364.

Mondal, K.K., Rana, S.S. and Sood, P. (2002). Sclerotinia root rot: A new threat to buckwheat seedlings in India. *Pl. Dis.* **86**: 1404.

Morrall, R.A.A., Dueck, J., McKenzie, D.L. and McGee, D.C. (1976) Some aspects of *Sclerotinia sclerotiorum* in Saskatchewan 1970-75. *Can. Pl. Dis. Sur.* **56**: 56-62.

Mujica, F. and Oehrens, B.E. (1967). *Segunda addenda* a flora fungosa Chilena. *Boletin Tecnico,* **27**: 1-78.

Nagaraja, O. and Krishnappa, M. (2009). Seed-borne mycoflora of niger (*Guizotia abyssinica* Cass.) and its effect on germination. *Indian Phytopathol.* **62**: 513-517.

Nattrass, R.M. (1961). Host lists of Kenya fungi and bacteria. *Mycol. Paper* **81**: 1-46.

Nikandrow, A., Weidemann, G.J. and Auld, B.A. (1990). Incidence and pathogenicity of *Colletotrichum orbiculare* and a *Phomopsis* sp. on *Xanthium* sp. *Pl. Dis.* **74**: 796-799.

O'Sullivan, C.A., Belt, K. and Thatcher, L.F. (2021). Tackling control of a cosmopolitan phytopathogen: *Sclerotinia*. *Front. Pl. Sci.* doi: 10.3389/fpls.2021.707509.

Ojaghian, M.R. (2009). First report of *Sclerotinia sclerotiorum* on potato plants in Iran. *Australasian Pl. Dis. Not.* **4**: 39-41.

Ojaghian, S. (2020). A new record of *Sclerotinia sclerotiorum* infecting potato plants in China. *J. Plant Pathol.* **102**: 1273.

Oliveira, R.R., Braz Jr., G.B.P., Oliveira, R.S., Hentges, M., Takano, H.K. and Vida, J.B. (2015). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on *Crotalaria spectabilis* in Brazil. *Pl. Dis.* **99**: 1037.

Orieux, L. and Felix, S. (1968). List of plant diseases in Mauritius. *Phytopathol. Papers* **7**: 1-48.

Orlikowski, L.B. and Valjustkaite, A. (2007). New record of Phytophthora root and stem rot of *Lavendula angustifolia*. *Acta Mycol.* **42**: 193-198.

Ozer, G., Sameeullah, M., Bayraktar, H. and Gore, M.E. (2017). Genetic diversity among phytopathogenic *Sclerotinia*ceae, based on retrotransposon molecular markers. *Phytopathol. Med.* **56:** 251-258.

Palti, J. (1963). *Sclerotinia sclerotiorum* in Israel. *Phytopathol. Med.* **2**: 60-64.

Pande, A. and Rao, V.G. (1998). *A Compendium- Fungi on legumes from India.* Scientific Publishers, Jodhpur, India, 188 pp.

Pantidou, M.E. (1973). Fungus-host index for Greece. *Benaki Phytopathological Institute, Kiphissia*, Athens, 382 pp.

Parasar, C.S. and Chahal, D.S. (1962). Stem rot of berseem (*Trifolium alexandrinum* L.) caused by *Sclerotinia sclerotiorum* (Lib.) de bary. *Indian Phytopathol.* **15**: 293-294.

Park, M.S., Kim, Y.G., Lee, S.W., Park, C.G., Kim, Y.I., Lee, E.S., Chang, J.K. and An, T.J. (2017). First report of *Sclerotinia sclerotiorum* causing Sclerotinia rot on *Ixeridium dentatum* in Korea. *Korean J. Mycol.* **45:** 381-385.

Partyka, R.E. and Mai, W.F. (1962). Effect of environment and some chemicals on *Sclerotinia sclerotiorum* in laboratory and potato field. *Phytopathology* **52**: 766-770.

Pawlowski, M.L., Murithi, H., Hailemariam, M., Tesfaye, A.A. and Hartman, G.L. (2019). First report of *Sclerotinia sclerotiorum* causing stem rot on soybean (*Glycine max*) in Ethiopia. *Pl. Dis.* **103:** 2676.

Pennycook, S.R. (1989). *Plant diseases recorded in New Zealand.* Plant Disease Division, D.S.I.R., Auckland. Vol. 3.

Pieczul, K. (2018). First report of *Sclerotinia sclerotiorum* (Sclerotinia blight) on *Symphyotrichum dumosum* in Poland. *Pl. Dis.* **102:** 1027-1028.

Pieczul, K. (2019). First report of *Sclerotinia sclerotiorum* on *Verbena bonariensis* in Poland. *J. Plant Pathol.* **101:** 761.

Piepenbring, M. (2006). Checklist of fungi in Panama. Preliminary version. *Puente Biol.* **1**: 1-190.

Poole, R.F. (1922). The Sclerotinia rot of celery. *New Jersey Agric. Exp. St. Bull.,* 359 pp.

Prasad, L., Kamil, D., Solanki, R.K. and Singh, B. (2017). First report of *Sclerotinia sclerotiorum* infecting cumin (*Cuminum cyminum*) in India. *Pl. Dis.* **101:** 833.

Prova, A., Akanda, A.M., Islam, S. and Hossain, M.M. (2017). First report of *Sclerotinia sclerotiorum* causing pod rot disease on okra in Bangladesh. *Can. J. Plant Pathol.* **39:** 72-76.

Prova, A., Akanda, A.M., Islam, S. and Hossain, M.M. (2018). Characterization of *Sclerotinia sclerotiorum*, an emerging fungal pathogen causing blight in hyacinth bean (*Lablab purpureus*). *Plant Pathol. J.* **34:** 367-380.

Prova, A., Akanda, M.A.M., Islam. S., Sultana, F., Islam, M.T.

and Hossain, M.M. (2014). First report of stem and pod blight of hyacinth bean caused by *Sclerotinia sclerotiorum* in Bangladesh. *J. Plant Pathol.* **96:** 607.

Punja, Z.K. and Ni, L. (2021). The bud rot pathogens infecting cannabis (*Cannabis sativa* L., *marijuana*) inflorescences: symptomology, species identification, pathogenicity and biological control. *Can. J. Plant Pathol.* **43:** 827-854.

Purdy, L.H. (1979). *Sclerotinia sclerotiorum*: History, diseases and symptomatology, host range, geographical distribution and impact. *Phytopathology* **69**: 875-880.

Raaymakers, T.M. and Van den Ackerveken, G. (2016). Extracellular recognition of oomycetes during biotrophic infection of plants. *Front. Pl. Sci.* **7:** 906.

Rahman, M.M.E., Dey, T.K., Hossain, D.M., Nonaka, M. and Harada, N. (2015). First report of white mould caused by *Sclerotinia sclerotiorum* on jackfruit. *Australasian Pl. Dis. Not.* **10:** 10.

Ramsey, G.B. (1924). *Sclerotinia intermedia* n sp. a cause of decay of salsify and carrots. *Phytopathology* **14**: 323-327.

Redman, R.S., Dunigan, D.D. and Rodriguez, R.J. (2001). Fungal symbiosis from mutualism to parasitism: who controls the outcome, host or invader? *New Phytol.* **151**: 705-716.

Richardson, M.J. (1990). *An annotated list of seed-borne diseases*. International Seed Testing Association, Zurich. **4:** 1-387.

Riley, E.A. (1960). A revised list of plant diseases in Tanganyika Territory. *Mycol. Paper* **75**: 1-42.

Rossman, A.Y., Palm, M.E. and Spielman, L.J. (1987). A literature guide for the identification of plant pathogenic fungi. American Phytopathological Society, St. Paul, Minnesotta, 202–203 pp.

Roy, A.K. (1973). Host range of *Sclerotinia sclerotiorum* and *Sclerotiorum rolfsii* in Jorhat, Assam. *Sci. Cul*. **39**: 319-320.

Roy, A.K. (1985). Fungal diseases of ornamentals and flowers in Assam. *Indian Hortic.* **30**: 19-21.

Ruano-Rosa, D., Minutillo, S.A., Li Destri Nicosia, M.G., Agosteo, G.E. and Schena, L. (2017). First report of *Sclerotinia sclerotiorum* associated with olive fruit rot in Italy. *Pl. Dis.* **101:** 1040.

Saharan, G.S. and Mehta, N.K. (2008). *Sclerotinia diseases of crop plants: Biology, ecology and disease management.* Springer Science, The Netherlands, pp. 485.

Saharan, G.S., Mehta, N.K. and Meena, P.D. (2021). *Genomics of crucifer's host-resistance*. Springer's Nature, the Netherlands, pp. 786.

Saira, M., Rehman, A., Gleason, M.L., Alam, M.W., Abbas, M.F., Ali, S. and Idrees, M. (2017). First report of *Sclerotinia sclerotiorum* causing stem and crown rot of Berseem (*Trifolium alexandrinum*) in Pakistan. *Pl. Dis.* **101:** 835-836.

Saito, I. (1997). *Sclerotinia nivalis* sp. *nov*. the pathogen of snow mold of herbaceous dicots in northern Japan. *Mycoscience* **38**: 227-236.

Salgado-Salazar, C., Beirn, L.A., Ismaiel, A., Boehm, M.J., Carbone, I., Putman, A.I., Tredway, L.P., Clarke, B.B. and Crouch, J.A. (2018). *Clarireedia*: a new fungal genus comprising four pathogenic species responsible for dollar spot disease of turfgrass. *Fungal Biol.* **122:** 761-773.

Sampson, P.J. and Walker, J. (1982). *An annotated list of plant diseases in Tasmania.* Department of Agriculture, Tasmania, pp. 1-121.

Sanogo, S., Lujan, P.A. and Baucom, D. (2015). First report of *Sclerotinia sclerotiorum* on cabbage in New Mexico. *Pl. Dis.* **99**: 891.

Sanogo, S. and Puppala, N. (2007). Characterization of a darkly pigmented mycelial isolate of *Sclerotinia sclerotiorum* on valencia peanut in New Mexico. *Pl. Dis.* **91**: 1077-1082.

Schwartz, H.F. (1977). Epidemiology of white mold disease (*Sclerotinia sclerotiorum*) = (*Whetzelinia sclerotiorum*) of dry edible beans (*Phaseolus vulgaris*) with emphasis on resistance and host architectural disease avoidance mechanism. *Ph.D Thesis*, University of Nebraska, Lincoln, Nebraska, pp. 145.

Seifbarghi, S., Borhan, M.H., Wei, Y., Ma, L., Coutu, C., Bekkaoui, D. and Hegedus, D.D. (2020). Receptor-Like Kinases BAK1 and SOBIR1 are required for necrotizing activity of a novel group of *Sclerotinia sclerotiorum* necrosis-inducing effectors. *Front. Pl. Sci*. doi:10.3389/ fpls. 2020.01021.

Sharma, P., Meena, P.D., Verma, P.R., Saharan, G.S., Mehta, N., Singh, D. and Kumar, A. (2015). *Sclerotinia sclerotiorum* (Lib) de Bary causing *Sclerotinia* rot in oilseed Brassicas: a review. *J. Oilseed Bras.* **6:** 1-44.

Shaw, C.G. (1973). Host fungus index for the Pacific Northwest-I. *Washington State Agric. Exp. St. Bull.* **765**: 1-121.

Shen, Y.M., Chao, C.H., Wang, F.C., Liu, H.L. and Huang, T.C. (2012). First report of stem and leaf blight caused by *Sclerotinia sclerotiorum* on Eustoma in Taiwan. *Pl. Dis.* **96**: 910.

Shi, Y.X., Xie, X.W., Song, J.W., Jin, Z.W., Chai, A.L., Li, S. and Li, B.J. (2016). First report of *Sclerotinia* rot on *Andrographis paniculata* in China. *Can. J. Plant Pathol.* **38:** 522-526.

Shivas, R.G. (1989). Fungal and bacterial diseases of plants in Western Australia. *J. Royal Soc. Western Australia* **72**: 1-62.

Shrestha, U., Swilling, K.J., Butler, D.M. and Ownley, B.H. (2018). First report of basal drop and white mold on lettuce, broccoli, and mustard caused by *Sclerotinia sclerotiorum* in Tennessee, USA. *Pl. Dis.* **102:** 249.

Simmonds, J.H. (1966). Host index of plant diseases in Queensland. Department of Primary Industries, Brisbane, Queensland, pp. 111.

Singh, S.B., Singh, A.K. and Singh, A.K. (2003). *In vitro* evaluation of fungitoxicants on developmental stages of

Sclerotinia sclerotiorum. *Ann. Pl. Prot. Sci.* **11**: 388-390.

Singh, S.B. and Singh, R. (2001). A new Sclerotinia stem rot of bishop weed. *Indian Phytopathol.* **54**: 140.

Smith, R.E. (1900). *Botrytis* and *Sclerotinia*: their relation to certain plant diseases and to each other. *Bot. Gaz.* **29**: 369-407.

Smith, R.E. (1929). Life history of *Sclerotinia sclerotiorum* (Lib) Mass in connection with green rot of apricots. *Phytopathology* **19**: 1136-1137.

Smith, R.E. (1931). The life history of *Sclerotinia sclerotiorum* with reference to the green rot of apricot. *Phytopathology* **21**: 407-423.

Song, J.H. and Koh, Y.J. (1999). Sclerotinia twig blight on trees and cottony rot on fruits of *Satsuma mandarin* caused by *Sclerotinia sclerotiorum*. *Plant Pathol. J.* **15**: 236-241.

Spaulding, P. (1961). *Foreign diseases of forest trees of the world*. USDA Agriculture Handbook, **197**: 1-361.

Spooner, B.M. (1987). Helotiales of Australasia: Geoglossaceae, Orbiliaceae, Sclerotiniaceae, Hyaloscyphaceae. *Bibliotheca Mycologica* **116**: 1-711.

Srivastava, U.K. and Diwakar, M.C. (1987). Note on stem rot and wilt of chillies in Haryana (India). *Pl. Prot. Bull.* **39**: 35.

Stevens, F.L. and Hall, J.G. (1911). A serious lettuce disease (sclerotiniose) and a method of control. *North Carolina Agric. Exp. St. Tech. Bull.* **8**: 85-145.

Strauss, J. and Dillard, H.R. (2009). First report of *Sclerotinia* stem rot caused by *Sclerotinia sclerotiorum* on *Hibiscus trionum* in New York. *Pl. Dis.* **93**: 673.

Sun, Z.X. and Hsiang, T. (2016). First report of *Sclerotinia sclerotiorum* on periwinkle (*Catharanthus roseus*) in Ontario, Canada. *Pl. Dis.* **100:** 1789-1790.

Tai, F.L. (1979). *Sylloge Fungorum Sinicorum*. Scietific Press, Academic Sinica, Peking, pp. 1527.

Takeuchi, J. and Horie, H. (1996). Occurrence of Sclerotinia rot of *Brassica campestris* (Chinensis Group), Angelica keiskei, beard-tongue [*Penstemon*], bladder campion [*Silene vulgaris*] and verbena [*V. officinalis*] caused by *Sclerotinia sclerotiorum*. *Proc. Kanto Tosan Pl. Prot. Soc.* **43**: 67-70.

Takeuchi, J. and Horie, H. (1999). First occurrence of Sclerotinia rot in Aster and strawflower in Japan. *Ann. Rep. Kanto-Tosan Pl. Prot. Soc.* **46**: 57-59.

Taubenhaus, J.J. (1920). *Diseases of greenhouse crops and their control.* E.P. Dutton and Co., New York, pp. 429.

Taubenhaus, J.J. and Ezekiel, W.N. (1931). A Sclerotinia limb blight of figs. *Phytopathology* **21**: 1195-1197.

Tian, B., Xie, J., Fu, Y., Cheng, J., Li, B., Chen, T., Zhao, Y., Gao, Z., Yang, P., Barbetti, M.J., Tyler, B.M. and Jiang, D. (2020). A cosmopolitan fungal pathogen of dicots adopts an endophytic lifestyle on cereal crops and protects them from major fungal diseases. *ISME Journal* **14:** 3120-3135.

Trigiano, R.N., Boggess, S.L. and Ownley, B.H. (2018). First report of an aerial blight of *Chrysogonum virginianum* (green and gold) caused by *Sclerotinia sclerotiorum* in the United States. *Pl. Dis.* **102:** 450-451.

Trinh, H.X., Quan, M.V., Groenewald, J.Z. and Burgess, L.W. (2012). First report of stub dieback of poinsettia (*Euphorbia pulcherrima*) caused by *Sclerotinia sclerotiorum* in Vietnam. *Australasian Pl. Dis. Not.* **7:** 55-57.

Tripathi, A.N., De, R.K., Sharma, H.K. and Karmakar, P.G. (2015). Emerging threat of *Sclerotinia sclerotiorum* causing white/cottony stem rot of mesta in India. *New Dis. Rep.* **32:** 19.

Tziros, G.T., Bardas, G.A., Tsialtas, J.T. and Karaoglandis, G.S. (2008). First report of oilseed rape stem rot caused by *Sclerotinia sclerotiorum* in Greece. *Pl. Dis.* **92**: 1473.

Uloth, M.B., Clode, P.L., You, M.P. and Barbetti, M.J. (2016). Attack modes and defence reactions in pathosystems involving *Sclerotinia sclerotiorum, Brassica carinata, B. juncea* and *B. napus*. *Ann. Bot.* **117:** 79-95.

Umemoto, S., Nagashima, K., Yoshida, S. and Tsushima, S. (2007). Sclerotinia rot of blueberry caused by *Sclerotinia sclerotiorum*. *J. Gen. Plant Pathol.* **73**: 290-292.

Valleau, W.D., Fergus, E.N. and Henson, L. (1933). Resistance of red clover to *Sclerotinia trifoliorum* Eriss and infection studies. *Kentucky Agric.* Exp. *St. Bull.* **341**: 113-131.

Kumar, V., Rajeshkumar, P., Senthilraja, C., Nakkeeran, S. and Fernando, W.G.D. (2015). First report of *Sclerotinia sclerotiorum* causing stem rot of carnation (*Dianthus caryophyllus*) in India. *Pl. Dis.* **99**: 1280-1281.

Waipara, N.W. (2006). Isolation of white rot, *Sclerotinia sclerotiorum*, causing leaf necrosis on *Tradescantia fluminensis* in New Zealand. *Australasian Pl. Dis. Not.* **1**: 27-28.

Wakefield, E.N. (1924). On the names *Sclerotinia sclerotiorum* (Lib) Massee and *S. libertiana* Fuckel. *Phytopathology* **14**: 126-127.

Walker, A.S., Gautier, A., Confais, J., Martinho, D., Viaud, M., Le Pecheur, P., Dupont, J. and Fournier, E. (2011). *Botrytis pseudocinerea*, a new cryptic species causing gray mold in French vineyards in sympatry with *Botrytis cinerea*. *Phytopathology* **101:** 1433-1445.

Wang, A.R., Lin, W.W., Chen, X.T., Lu, G.D., Zhou, J. and Wang, Z.H. (2008). Isolation and identification of Sclerotinia stem rot causal pathogen in *Arabidopsis thaliana*. *J. Zhejiang Univ. Sci.* **9:** 818-822.

Wang, C.H., Shang, W.J., Wang, Q., Fan, S.H., Subbarao, K.V., Xu, X.M. and Hu**, X.P.** (2021). White rot of *Panax quinquefolius* caused by *Sclerotinia nivalis*. *Plant Pathol.* **70**: 2034-2045.

Whetzel, H.H. (1945). A synopsis of the genera and species of the *Sclerotinia*ceae, a family of stromatic inoperculate discomycetes. *Mycologia* **37**: 648-714.

Willetts, H.J., Wong, J.A.L. (1980) The biology of *Sclerotinia sclerotiorum*, *S. trifoliorum* and *S. minor* with emphasis

on specific nomenclature. *Botanical Review* **46**: 101–165.

Willetts, H.J. (1997). Morphology development and evaluation of stromata sclerotia and macroconidia of the *Sclerotinia*ceae. *Mycological Res.* **101**: 939-952.

Williams, B., Kabbage, M., Kim, H.J., Britt, R. and Dickman, M.B. (2011). Tipping the balance: *Sclerotinia sclerotiorum* secreted oxalic acid suppresses host defenses by manipulating the host redox environment. *PLoS Pathogens,* **7**, e1002107.

Wolcan, S., Ronco, L., Dal Bo, E., Lori, G. and Alippi, H. (1996). First report of diseases on *lisianthus* in Argentina. *Pl. Dis.* **80**: 223.

Wolcan, S.M. and Grego, P.J. (2005). Stem rot of *Trachellium caeruleum* and *Craspedia globosa* caused by *Sclerotinia sclerotiorum* in Argentina. *J. Plant Pathol.* **87:** 243.

Wolf, F.A. and Cromwell, R.O. (1919). Clover stem rot. *North Carolina Agric. Exp. Stat. Tech. Bull.* **16**: 22.

Woodhall, J.W., Brown, L., Harrington, M., Olsen, N., Miller, J. and Duellman, K.M. (2020). *Sclerotinia sclerotiorum* causes decay and forms sclerotia in potato tubers in Idaho. *Pl. Health Prog.* **21**: 335-337.

Woodward, J.E., Brenneman, T.B., Kemerait Jr., R.C., Culbreath, A.K. and Clark, J.R. (2006). First report of Sclerotinia blight caused by *Sclerotinia sclerotiorum* on peanut in Georgia. *Pl. Dis.* **90**: 111.

Woodward, J.E., Nui, C., Wright, R.J., Batla, M.A. and Baughman, T.A. (2008). First report of *Sclerotinia sclerotiorum* infecting peanut in Texas. *Pl. Dis.* **92:** 1468.

Wright, E.R. and Palmucci, H.E. (2003). Occurrence of stem rot of chrysanthemum caused by *Sclerotinia sclerotiorum* in Argentina. *Pl. Dis.* **87:** 98.

Wright, E.R., Rivera, M.C., Chiesa, G. and Morisigue, D. (2005). Occurrence of Sclerotinia stem rot of *Osteospermum* sp., *Felicia amelloides* and *Ranunculus asiaticus* in Argentina. *Pl. Dis.* **89**: 1014.

Wu, Y.S. and Wang, C.G. (1983). *Sclerotinia asari*: a new species of Sclerotiniaceae. *Acta Phytopathol Sinica* **13**: 9-14.

Yan, L.Y., Kang, Y.P., Lei, Y., Huang, J.Q., Wan, L.Y. and Liao, B.S. (2014). First report of *Sclerotinia sclerotiorum* causing Sclerotinia blight on peanut (*Arachis hypogaea*) in Northeastern China. *Pl. Dis.* **98**: 156.

Yang, X., Yang, J., Wang, Y., He, H., Niu, L., Guo, D., Xing, G., Zhao, Q., Zhong, X., Sui, L., Li, Q. and Dong, Y. (2019). Enhanced resistance to Sclerotinia stem rot in transgenic soybean that over-expresses a wheat oxalate oxidase. *Trans. Res.* 103-114.doi:10.1007/s11248-018-0106-x.

Young, H.M., Srivastava, P., Paret, M.L., Dankers, H., Wright, D.L., Marois, J.J. and Dufault, N.S. (2012). First report of Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* on *Brassica carinata* in Florida. *Pl. Dis.* **96:** 1581.

Yu, Y., Cai, J., Ma, L., Huang, Z., Wang, Y., Fang, A., Yang, Y., Qing, L. and Bi, C. (2020). Population structure and aggressiveness of *Sclerotinia sclerotiorum* from rapeseed (*Brassica napus*) in Chongqing City. *Pl. Dis.* **104:** 1201-1206.

Zhang, X., Xian, W., Qu, M., Xu, M., Guo, Z., Yu, J., He, K., Yang, M. and Chi, Y. (2022). First report of Sclerotinia blight on peanut caused by *Sclerotinia sclerotiorum* in Qinghai Province, China. *Pl. Dis.* **106:** 1301.

Zhou, F., Zhu, F.X., Zhang, X.L. and Zhang, A.S. (2014). First report of dimethachlon resistance in field isolates of *Sclerotinia sclerotiorum* on oilseed rape in Shaanxi Province of North-western China. *Pl. Dis.* **98**: 568.

Zhou, L., Yu, L., Huang, P., Liu, W., Tang, Z. and Zeng, J. (2019). First report of Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* on *Macleaya cordata* in China. *Pl. Dis.* **103:** 584-585.

Zimmer, D.E., Klisiewicz, J.M. and Thomas, C.A. (1963). Alternaria leaf spot and other diseases of safflower in 1962. *Pl. Dis. Rep.* **47:** 643.