

Phytophthora attacks. Interestingly, the seedlings of the new *Poncirus trifoliata* hybrids, F6 and F18, expressed a high level of tolerance to gummosis under saline conditions similar to that observed in the 'Gou Tou' sour orange (*Citrus aurantium* L.) and Sunki mandarin (*Citrus sunki* Hort. Ex. Tan.) checks, whereas pomelo (*Citrus grandis*) and citrumelo cv. 'Winter Haven' (*Citrus paradisi* Macf. x *Poncirus trifoliata* L. Raf.) were ranked as sensitive. The length of stem necrosis was positively correlated with the accumulation of chloride in the leaves but was independent of stem water content. This finding supports the hypothesis that the fungal infection is favoured by the specific effects of salts rather than their osmotic effects.

O23-9. Characterization of the race structure of *Leptosphaeria maculans* in Germany and searching for sources of quantitative resistance in *Brassica napus* against the pathogen

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Leptosphaeria maculans (LM), the causal agent of the blackleg disease, is one of the most important pathogens of oilseed rape (OSR). This study aimed at monitoring the race structure of LM populations in different German regions and searching for quantitative resistance against the pathogen in winter oilseed rape. To this end, 354 doubled haploid lines, produced by crossing six parents with potential quantitative resistance and one susceptible parent, were phenotyped under field and greenhouse conditions. In the field, the plants were inoculated with infested stubbles from the previous season while in the greenhouse different inoculation methods were tested. The results showed that inoculating the plants in the greenhouse with a LM-mycelial agar plug on an injured stem gave the most reproducible and reliable results. To evaluate disease severity, the percentage of the cankered area of stem base cross-section was determined at growth stage (BBCH) 80-83 in the field and at 49 dpi in the greenhouse. The results showed significant variation among the DH lines, where the cankered area was 20-25% in some resistant lines compared to the susceptible DH lines where the cankered area reached 80-100%. LM population was investigated in four regions in Germany. Twenty LM races were detected. The most dominant races in the explored regions belong to either the race Avrlm7/Avrlep1/Avrlep2 or the race Avrlm7/Avrlep1. Rlm7 and LepR1 represented the most effective major R genes in the studied regions.

O23-10. Identification of new resistant sources against sheath blight of rice from *Oryza rufipogon*

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Wild relatives of rice (*Oryza sativa*) are important sources for rice improvement under both biotic and abiotic stress. Sheath blight caused by *Rhizoctonia solani* [Teleomorph-*Thanatephorus cucumeris* (Frank) Donk.] is major rice (*Oryza sativa* L.) disease and cause significant losses up to 69% under favourable environmental conditions worldwide. Four hundred five accessions of *Oryza rufipogon* were screened to identify resistance against sheath blight during the year 2015. There was not a single accession which showed complete resistance. Out of 405, 22 were found to be moderately resistant which were further evaluated during the

years 2016 and 2017. Finally, 19 accessions were identified as promising one and showed continuously moderately resistant reaction for three years. Correlation study revealed that the different disease variables such as lesion height, relative lesion height and disease score measured were significantly ($P < 0.05$) correlated. All the genotypes and genotype*experiment interaction had a significant ($P < 0.001$) effect on all the disease variables. Cluster analysis showed that all the accessions were clustered into 4 groups during the year 2015. These groups showed a moderately resistant, moderately susceptible and susceptible reaction. The results of the present study showed the promising accessions viz., IRGC80600, IRGC80762, IRGC104404A, CR100036 and CR100436 can be utilized in the sheath blight resistance breeding programme.

O23-11. Grafting on resistant root stocks - a promising strategy in the management of bacterial wilt in brinjal and tomato

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The cultivation of solanaceous vegetables like brinjal and tomato is severely affected by Bacterial Wilt (BW). The causal agent *Ralstonia solanacearum* is a soil-borne bacterium, highly diverse and can survive for many years without a host. Most of the commercially grown varieties are susceptible to the disease. Our study reports three promising resistant rootstocks and their use in the management of BW in brinjal and tomato. Highly susceptible brinjal cultivars grafted on *Solanum torvum* did not wilt in various field trials. However, the non-grafted seedlings were completely affected by wilt. Along with this, BW resistant rootstocks obtained from the World Vegetable Centre, Taiwan were also evaluated and were found to show different levels of resistance during glasshouse evaluation. One of the lines S4 and a BW resistant variety, Surya were evaluated as rootstocks and recorded a reduced incidence of BW (10 to 40 %) in brinjal during glass house evaluation while in seedlings wilt incidence was 80 to 100%. Tomato seedlings grafted on *S. torvum*, Surya and S4 also recorded very low BW incidence (0 to 15%) under glass house evaluation while seedlings recorded 80 to 100% wilt. Reduced wilt incidence (23 to 40%) was observed in grafts of greenhouse-grown tomato hybrid (GS600) made on *S. torvum* while the seedlings were severely affected (80 to 100%) in a two-year evaluation period. Grafting of susceptible brinjal and tomato on resistant rootstock could be a promising strategy in BW management.

O23-12. Pigeonpea breeding for *Fusarium* wilt resistance and pest tolerance in Eastern and Southern Africa by using local genetic diversity

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Pigeonpea provides multiple benefits to cropping and farming systems through biological nitrogen fixation, nutrient recycling, climate resilience and sustainable intensification. It plays a significant role in food and nutritional security, feed and fuel wood supply and income generation. It is grown by about 6 million smallholder subsistence farmers in Eastern and Southern Africa (ESA). Pigeonpea production in ESA is steadily increasing over the last 15 years in Malawi, Tanzania, Kenya, and Mozambique. Eastern and Southern Africa (ESA) is the secondary centre of genetic diversity and through several germplasm collection missions ICRISAT able to capture regional genetic diversity. ICRISAT-Nairobi is regularly collecting local