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E - Newsletter
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An ISO 9001:2008 Certified Institute

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Photographs by: M. A. Khan
G.K. Tripathi

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Important Events

Preliminary interaction meeting of III QRT of ICAR-NRCSS, Ajmer held at ICAR, Krishi Bhawan, New Delhi

Vide Councils Order No 1(2)-IA dated 8th August, 2016, III QRT of ICAR-NRCSS, has been constituted to review Centre performance from June, 2011 to May 2016. Following are the members of III QRT

1. Dr. A.R. Pathak, Vice-Chancellor JAU, Junagadh (Gujarat): Chairman
2. Dr. K.B. Kathiria, Director of Research, AAU Anand (Gujarat): Member
3. Dr. N. L. Joshi, Ex-Agronomist, ICAR-C A Z R I, Jodhpur (Rajasthan) : Member
4. Dr. M. Anandraj, Ex-Director, ICAR- Indian Institute of Spice Research, Calicut (Kerala):Member
5. Dr. K .K. Bora, Ex-Dean, College of Agriculture, Mandore, Jodhpur (Rajasthan): Member
6. Dr. R.S. Mehta, Principal Scientist, ICAR-NRCSS, Ajmer: Member Secretary

First preliminary interaction meeting of III QRT of ICAR-NRCSS, Ajmer was held on 18th October, 2016 at 3.00 PM in the office of Dr. A.K. Singh, Deputy Director General KAB-I(H.S.), Pusa, New Delhi. DDG briefed that QRT should reviewed critically the work done by NRCSS during reporting period. He also suggested that QRT should visit seed spices area for future.

Important Events

संस्थान में राजभाषा हिन्दी पखवाड़ा- 1- 15 सितम्बर, 2016 में मनाया गया

राष्ट्रीय बीजीय मसाला अनुसंधान केंद्र, अजमेर (राजस्थान), पर विगत वर्षो की तरह इस वर्ष भी राजभाषा हिन्दी पखवाड़ा 1--15 सितम्बर, 2016 के दौरान मनाया गया| पखवाड़ा का शुभारम्भ 1 सितम्बर, 2016 को राजभाषा क्रियान्वयन समिति की बैठक के साथ हुआ| केंद्र पर राजभाषा हिन्दी के प्रगामी प्रयोग हेतु अनेक सुझावों पर चर्चा की गयी | 3 सितम्बर, 2016 को संस्थान में कार्यरत वैज्ञानिक, अधिकारी एवं कर्मचारी के बच्चो की हिन्दी में अभिरुचि हेतु बाल प्रतियोगिता का आयोजन हुआ जिसमे हिन्दी काव्य पाठ तथा प्रश्नोत्तरी प्रतियोगिता हुई|

हिन्दी पखवाड़े के दौरान अनके प्रतियोगितो का जैसे वाद-विवाद, तत्काल/आशु भाषण, टिप्पणी-लेखन, कर्मचारी-वर्ग हेतु हिन्दी लेखन प्रतियोगिता, निबन्ध लेखन का आयोजन किया गया| इन प्रतियोगिताओ में संस्थान में कार्यरत वैज्ञानिक, अधिकारी, कर्मचारी, एवं अनुसंधान अध्येता वर्ग के लोगो ने अधिक संख्या में भाग लिया | डा. गोपाल लाल, निदेशक रा. बी. म. अनु. केंद्र ने संस्थान के सभी लोगो को हिन्दी में कार्य करने के लिए विशेष तौर पर प्रेरित किया तथा मानक वर्तनी के प्रयोग को वैज्ञानिक लेखो में बढावा देने पर बल दिया| राजभाषा हिन्दी के प्रभारी डा. बृजेश के कुमार मिश्र ने विभिन्न कार्यक्रमों के सफल आयोजन हेतु केन्द्र निदेशक, डा. गोपाल लाल के मार्गदर्शन को रेखांकित करते हुए निर्णायक मण्डल के सदस्यों एस. एन. सक्सेना, डा. आर. के. कांकाणी तथा डा. युगल किशोर शर्मा का विशेष आभार व्यक्त किया| सफल प्रतिभागियों को पुरुस्कार प्रदान किये गये और समस्त वैज्ञानिको, अधिकारियो एवं कर्मचारियों को इस हिन्दी पखवाड़ा कार्यक्रम को सफल बनाने के लिए धन्यवाद ज्ञापन किया गया| इस राजभाषा हिन्दी पखवाड़ा में कार्यालय में हिन्दी के और अधिक प्रयोग पर सभी लोगो को ज्यादा ध्यान देने की आवश्यकता पर जोर दिया गया |

Important Events

Rashtriya Beej Vitran Kisan Mela Evam Kisan Gosthi-2016

Rashtriya Beej Vitran Kisan Mela evam Kisan Gosthi-2016 was organized from18-19, September, 2016 at the centre. The Mela function was inaugurated by Dr. Gurbachan Singh, Chairman, ASRB, New Delhi. Dr. T. Janakiram, ADG (Hort. Sci.), ICAR, New Delhi. Other dignitaries as guests of honour were Dr. S.M.K Naquvi, Director, ICAR-CSWRI Avikanagar, Dr. Dhiraj Singh, Director, ICAR-DRMR, Bharatpur (Raj.), Dr. M.L. Jat, Coordinator, CIMMYT-CCAFS, South Asia, New Delhi and Dr. V. K. Sharma, Deputy Director (Agriculture), Ajmer (Raj.). Dr. Gopal Lal, Director, NRCSS, Ajmer welcomed all the guests on the Dias, delegates and farmers. In the welcome address Dr. Lal highlighted the achievements made by NRCSS for enhancing productivity of seed spices in Rajasthan and India. He also pointed out that NRCSS has developed stem gall resistant variety of coriander i.e. ACr-1. Dr. Lal emphasized on value addition in seed spices by post harvest management techniques. In welcome address he also advised farmers for safe application of pesticide for quality seed spice production. In his address Dr. Gurbachan Sinh, Chief Guest of the inaugural function and Chairman ASRB, New Delhi advised youth to participate in various agriculture enterprises and suggested farmers to adopt improved production technology of seed spices for enhancing yield and quality of seed spices. Dr. T Jankiram, ADG (HS-II) ICAR, New Delhi suggested that farmers should enhance their income with growing coriander round the year. Dr. S.M.K. Naqvi, Director, CSWRI, Avikanagar, informed to participants of the mela that goat is just ATM (Any time milk) for taking milk anytime during 24 hours. Dr. Dhiraj Singh, Director, ICAR-DRMR, Bharatpur (Raj.) highlighted that rai oilseed crop is also used as spices. Dr. M.L. Jat, Coordinator, CIMMYT-CCAFS, South Asia, New Delhi advised farmers to conserve land, water and environment for taking sustainable production of seed spices. During the occasion more than 20 exhibition stalls of different agricultural products and inputs were displayed for the benefit of the farmers. In the inaugural function pamphlets on various aspects of seed spices production were released. More than 1800 farmers, extension officials and delegates from different parts of Rajasthan and adjoining states participated in the Mela. In the Kisan Gosthi, Scientists farmers' interaction was held on farmer's problem in respect to seed spices and other crops. During two days different sessions on various aspects of crop production and animal husbandry were organized for the benefit of the farmers. In the Valedictory function Smt. Madhu Paroda, Sarpanch of village Sardana was the Chief Guest and Dr. Dinesh Arora, Programme Coordinator, KVK, Ajmer was the Guest of honour. Smt Madhu Paroda advised farmers to take maximum benefit of the technologies of seed spices developed by NRCSS. Dr. R.S. Mehta, Principal Scientist (Agronomy) and the Mela Convener proposed vote of thanks in the end.





Important Events

27वीं अखिल भारतीय समन्वित मसाला अनुसंधान परियोजना की वार्षिक कार्यशाला

27वीं अखिल भारतीय समन्वित मसाला अनुसंधान परियोजना की वार्षिक कार्यशाला का उद्घाटन डॉ. टी. जानकीराम, सहायक महानिदेशक (उद्यान विज्ञान), भारतीय कृषि अनुसंधान परिषद, नई दिल्ली, द्वारा दिनांक 24 अक्टूबर 2016 को किया गया। यह कार्यशाला भारतीय मसाला अनुसंधान संस्थान कोझीकोड़ (केरल) तथा रा.बी.म.अनु.केन्द्र, तबीजी, अजमेर द्वारा संयुक्त रूप मे 24–26 अक्टूबर 2016 के दौरान आयोजित की गई। डॉ. जानकीराम ने अपने उद्बोधन में रेखांकित किया कि देश में उद्यानिकी फसलों का उत्पादन अनाज वाली फसलों से लगातार तीसरे वर्ष अधिक हुआ है। उन्होने यह भी बताया कि मसालें, उद्यानिकी फसलों में महत्वपूर्ण योगदान करते हैं जिनका केवल सुगंधीय अनुप्रयोग ही नही है अपितु निर्यात मूल्य भी अधिक है। लगभग 80 मसालें एवं उनके उत्पाद 150 से ज्यादा देशों में निर्यात किये जाते है। बहुत सारे देश जैसे वियतनाम, ऑस्ट्रेलिया, इन्डोनेशिया और चीन, भारतीय मसाला निर्यात मे प्रतिस्पर्धा भी करे रहे हैं। डॉ. जानकीराम ने मसालों की उत्पादकता बढ़ाने तथा किसानों की आय दोगुनी करने पर बल दिया। उन्होने सुझाव दिया कि गुणवत्ता युक्त बीज तथा पौध उत्पादन, जैविक एवं अजैविक तनाव प्रतिरोधी, सुक्ष्म जल प्रबंधन द्वारा प्रतिबूंद अधिक उपज, संरक्षित खेती, यांत्रिकरण, कटाई उपरान्त प्रसंस्करण व मूल्य संवर्धन के साथ–साथ मसालों की जलवायु परिवर्तन के अनुरूप फसल प्रणाली का विकास आदि विषयों पर अनुसंधान को केन्द्रित करने की आवश्यकता है।

डॉ. के. निर्मल बाबू, निदेशक, भारतीय मसाला अनुसंधान संस्थान, कोझीकोड़ (केरल) तथा परियोजना समन्वयक, अखिल भारतीय समन्वित मसाला अनुसंधान परियोजना ने सभी अतिथियों का स्वागत किया। डॉ. गोपाल लाल, निदेशक, रा.बी.म.अनु. केन्द्र, अजमेर ने कार्यक्रम की अध्यक्षता की। डॉ. गोपाल लाल ने अजवाइन व कलौंजी तथा कटाई उपरान्त प्रोद्यौगिकी अनुसंधान को अखिल भारतीय मसाला अनुसंधान परियोजना में सम्मिलित करने का सुझाव दिया। डॉ. होमी चेरियन, निदेशक, सुपारी एवं मसाला विकास निदेशालय कोझीकोड, (केरल), डॉ. पी.एन. जगदेव, अनुसंधान निदेशक, उडिसा कृषि विश्वविद्यालय, भुवनेश्वर, डॉ. एस. आर. मालू, पूर्व निदेशक अनुसंधान, महाराणा प्रताप कृषि एवं प्रोद्यौगिकी विश्वविद्यालय, उदयपरु विशिष्ठ अतिथि थे। इस अवसर पर एस.के.एन.कृषि विश्वविद्यालय, जोबनेर को उत्कृष्ठ केन्द्र का पुरस्कार प्रदान किया गया। तथा अखिल भारतीय समन्वित मसाला अनुसंधान परियोजना केन्द्रो के प्रकाशनों का भी विमोचन किया गया। इस कार्यशाला बैठक में भारत के विभिन्न राज्यों के 38 सहयोगी केन्द्रों से लगभग 125 वैज्ञानिकों नें भाग लिया। इस अवसर पर संस्थान द्वारा चलाये जा रहे स्वच्छता कार्यक्रम की सराहना की गई तथा 16 से 31 अक्टूबर 2016 के दौरान मनाये जा रहे स्वच्छता पखवाडे पर भी परिचर्चा की गई। डॉ. रवीन्द्र सिंह, प्रधान वैज्ञानिक,रा.बी.म.अनु.केन्द्र, तबीजी, अजमेर एवं इस कार्यशाला के सदस्य सविच ने धन्यवाद ज्ञापित किया।

Research Highlights

Development of protocol for drying of cumin essential oil for gas chromatographic studies

P N Dubey, S N Saxena and B K Mishra

The essential oil extracted through hydro-distillation process from cumin seeds contains considerable amount of moisture in the form of water mixed with the oil thoroughly. The profile analysis of essential oil for various constituents needs absolutely moisture free entity for proper separation of chromatographic peaks, improved signal to noise ratios and peak resolution in Gas Chromatographic studies.

Background Information: Essential oils are as such immiscible in aqueous solutions, but they dissolve significant amounts of water because of their polarity. One of the main problems is that many drying agents do not only absorb water, but also other polar compounds. A critical ratio thus needs to be determined for drying of these oils.

Hypothesis: Polarity of a solvent is directly proportional to its hygroscopic nature. Commonly used drying agents are calcium chloride ($CaCl_2$), sodium sulphate (Na_2SO_4), calcium sulphate ($CaSO_4$, also known as Drierite), potassium carbonate (K_2CO_3) and magnesium sulphate ($MgSO_4$), in their anhydrous form. All five of these, readily form hydrates at low temperatures.

Identification of critical stage of drying: To identify the critical stage of drying small amount of the drying agent was added initially. The mixture was swirled for few minutes intermittently and then allowed to settle till the solution was translucent and some amount of drying agent still floating in the mixture. After the translucency stage was reached the samples were centrifuged at 5000 RPM for 10 minutes and the dried essential oil and total oil were analysed for its components on GC. The same was repeated with other drying agents used mentioned below.

Drying agents analysed: Calcium chloride, Calcium sulphate, Magnesium sulphate and Sodium sulphate were evaluated for drying efficiency of essential oil and total oil from cumin seeds.

Development of protocol for drying of cumin

Essential oil samples obtained through hydro distillation of cumin seeds were treated with various inorganic drying agents namely calcium chloride ($CaCl_2$), sodium sulphate (Na_2SO_4), calcium sulphate ($CaSO_4$, also known as Drierite), potassium carbonate (K_2CO_3) and magnesium sulphate ($MgSO_4$) in the ratios 1:0.5, 1:1, 1:1.5, 1:2, 1:2.5 and 1:3 and centrifuged at different RPM with varying time intervals. The best result in terms of proper separation of chromatographic peaks, improved signal to noise ratios and resolution was attained with 1:1.5 ratios of essential oil/ total oil and anhydrous Na_2SO_4 at 5000 RPM centrifugation and hold time interval of 10 minutes. The colour of essential oil, translucency and its keeping quality also improved with clean up by the above derived parameters with anhydrous Na_2SO_4.

The protocol was used the qualitative and quantitative profile analysis of cumin essential oil from the different AESRs of Rajasthan and Gujarat supported by publication of the research article in the journal *Industrial Crops and Products* 95:50–59, 2017, (ISSN: 0926-6690).

Transfer of Technology

Trainings/ workshop/seminars organized

Sr. No	Name of the sponsoring agency	Duration	Title of the training	No. of farmers
1	Four days farmers training sponsored by IDH	6-9 September, 2016	Sustainable production technology for seed spices	30
2	Two days workshop under TSP	18-19 September, 2016	on Safe Production of Spices under TSP	151
3	Two days farmers training under MIDH	18-19 September, 2016	on improved production technology of Seed Spices under MIDH	56
4	Five days farmers training sponsored by Dy. Director, ATMA, Jodhpur	19-23 September, 2016	Improved production technology on seed spices	30
5.	Five days farmers training sponsored by Dy. Director, ATMA, Nagaur	3-7 October, 2016	Improved production technology for rabi crops	30
6	Five days farmers training sponsored by Director(Ag.), Rehman Kheda, U.P.	17-21, October, 2016	Improved production technology on seed spices crop	30





Human Resource Development

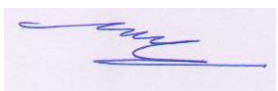
1. Dr. O.P. Aishwath (Senior Scientist) Participated and presented the paper in 81th Annual Convention of the Indian Society of Soil Science held during October 20-23, 2016 at Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior, M.P. India

TV All India Radio Programme

1. Dr. R.s. Mehta, Pr. Scientist (Agronomy), delivered a TV talk on 13.9.2016 at 6-7 PM on "cultivation of seed spices crop" for hello Kisan TV Programme broadcasted by DD Kisan Channel.

From the Director's Desk

The impact of unprecedented climate on seed spices has been very high in the past few years, high fluctuation in terms of diurnal temperature and untimely winter rains are main happenings affecting seed spices and other crops. With the onset of the *rabi* season. Seed spices high susceptibility to biotic stress which makes the situation more adverse, losses incurred in cumin due to blight and in coriander due to stem gall have hawked the situation in past few years. The chemical management strategy of biotic stress has also increased the pesticide residue load in the crop affecting export market at high rate. All these challenges are of main concern before the scientist of the centre. The ongoing activities of research and development in seed spices are focused to develop technologies to enhance the productivity levels, insights into the role of protected cultivation in seed spices is envisaged and preliminary trials are going on for past few years. Pesticide residue studies in cumin are on priority. Quality aspects of seed spice essential oil studied by profiling is taking pace, the impact of AESR on cumin essential profile analyzed scientists of the centre has thrown light on strong micro climatic interaction on essential oil profiles. Essential oil estimation and its profile needs to very precise for which scientist of the centre has also developed protocol for obtaining high quality essential oil free from water molecules coming via hydro-distillation method. The transfer of technology programmes undertaken by the centre are intensive and vast covering non traditional and tribal areas. With these words I wish the ensuing season may be fruitful for seed spice growers with minimum climatic vagaries.



(Gopal Lal)