

ISSN: 2250-2823



HortFlora

Research Spectrum

Volume 5 (2) June 2016

An International Peer Reviewed

JOURNAL



BIOSCIENCES & AGRICULTURE ADVANCEMENT SOCIETY

www.hortflorajournal.com

ABSTRACTS

www.hortflorajournal.com

ISSN : 2250-2823



HortFlora Research Spectrum, 5(2) : (June 2016)

1. Growth and Physiological Correlations in Custard Apple cv. Raidurg under Consortium of Vermicompost and PSB

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ABSTRACT : The field experiment on Influence of Vermicompost and PSB on growth and carboxylation efficiency of custard apple (*Annona squamosa* L.) cv. Raidurg was carried out at Fruit Research Farm, Department of Fruit Science at College of Horticulture and Forestry, Jhalawar (Rajasthan) during study period from October 2014 to April 2015. The experiment consisted of different doses of Vermicompost (2kg/plant, 4kg/plant and 6kg/plant) along with PSB (25g/plant, 50g/plant and 75g/plant) and its combination. The results revealed positive correlation of photosynthesis with increase in no. of shoots/branch; increase in canopy volume and percentage increase of scion girth under interactive effect of Vermicompost @ 6kg + PSB 75g/plant. The result showed that maximum per cent increase in East-West (18.22%), North-South spread (17.83%), plant height (18.34%), canopy volume (34.50%), leaf length (29.36%) as well as leaf width (25.77%), increased number of shoots (15.78), scion girth (8.28%), rootstock girth (8.51%) and relative water content (73.71%) were recorded under T₁₅ treatment i.e. Vermicompost@ 6kg + PSB 75g/plant. The carboxylation efficiency parameters were also observed maximum in respect of photosynthetic rate (5.60 $\mu\text{mol CO}_2\text{m}^{-2}\text{s}^{-1}$), photosynthetic active radiation (1608.33 $\text{mmol m}^{-2}\text{s}^{-1}$), stomatal conductance (14.67 $\text{m mol m}^{-2}\text{s}^{-1}$), leaf temperature (38.13°C), relative humidity (5.84%), internal CO₂ concentration (284.67 ppm), transpiration rate (1.33 $\text{mmol m}^{-2}\text{s}^{-1}$), and minimum vapour pressure deficit (47.80 mb) were noted under T₁₅ treatment (Vermicompost 6kg + PSB 75g/plant).

Published in : HortFlora Research Spectrum, 5 (2) : 89-98 (June 2016)

2. Survey, Collection and Characterization of Elite (Heavy Bunch) Somaclonal Variants from Tissue Cultured 'Grand Naine' Banana (*Musa spp.* AAA) in Farmers' Fields around Bangalore

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ABSTRACT : The present study was carried out during the period 2006-07 to characterize the elite (heavy bunch) somaclonal variants of tissue cultured 'Grand Naine' banana from the farmers' fields around Bangalore by visual screening. A total of eleven elite variants were collected and compared with original 'Grand Naine' (control) plants. Of all the elite somaclonal variants collected and evaluated, the variant GNV-04 was found very promising. It had significantly showed higher bunch weight (59.75 kg), bunch length (2.00m), number of hands per bunch (21.01) and number of fingers per hand (20.01). The quality parameters such as TSS, reducing and total sugars were significantly higher, with moderate titratable acidity. The organoleptic evaluation tests significantly favoured the control to a certain extent, but taste and texture were better with the variant GNV-04 compared to control. To confirm the variants at DNA level, RAPD analysis was conducted to identify the difference in the banding patterns. Forty three primers were used for the analysis of which OPF-09 differentiated the variants and the normal Grand Naine bananas. A band size of 320 bp was produced in all the normal samples but was absent in the variants tested. In the present study RAPD markers were proved to be effective and precise to confirm the variants identified using molecular characters. Of the eleven superior

variants analysed, variants GNV-04, GNV-08 and GNV-10 showed positive phenotypic characters which could be used in developmental programmes of Grand Naine banana.

Published in : HortFlora Research Spectrum, 5 (2) : 99-106 (June 2016)

3. Variability in Eggplant (*Solanum melongena* L.) Cultivars as Revealed by SDS-Page of Seed Protein

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ABSTRACT : Fourteen genotypes were distinguished into nine groups on different banding patterns in three zones (A, B and C). PB 64 and PB 66; BARI and Pant Rituraj; KS 331, PB 69 and Punjab Sadabahar; PB 70, SMB 115 and PB 67 fell in four different groups and showed similar banding pattern within the group. PB 64 and Pant Rituraj exhibited similar banding pattern (100%). Similarly, PB 66 and BARI, KS 331 and Punjab Sadabahar, KS 331 and PB 70, Punjab Sadabahar and Pant Samrat, PB 70 and SMB 115 showed 100 percent similarity in seed protein profiles. There were sufficient variability among the PB 69 and PB 67, PB 67 and Pusa Upkar, PB 67 and Pant Samrat. The minimum genetic similarity was observed between PB 69 and PB 67 (44%) followed by Punjab Sadabahar and PB 67 (47%) by PB 67 and Pusa Upkar (47%) and PB 67 and Pant Samrat (47%). The UPGMA analysis showed that PB 60, PB 68 PB 64, Pant Rituraj, PB 66, BARI and PB 69, KS 331, PB 70, SMB 115, Punjab Sadabahar, Pant Samrat, Pusa Upkar formed two different clusters. However, PB 60; PB 68; PB 64 and PB 66; BARI and Pant Rituraj; KS 331, PB 69 and Punjab Sadabahar; PB 70, SMB 115 and PB 70; Pusa Upkar; and Pant Samrat were three different neighbouring groups.

Published in : HortFlora Research Spectrum, 5 (2) : 107-111 (March 2016)

4. Effect of Pre-Harvest Spray of Calcium Nitrate, Boric acid and Zinc Sulphate on Yield and Quality of Nagpur Mandarin (*Citrus reticulata* Blanco)

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ABSTRACT : Genetic variability and correlation coefficient were studied in fifty genotypes of bael fruit at Horticulture Research Centre and laboratory of the Department of Horticulture, SVPUA&T, Meerut in two consecutive years i.e., 2013-14 and 2014-15. Data were recorded on 16 morphological and qualitative traits. Invariably commercially released cultivars viz., Pant Shivani, Pant Aparna, Pant Sujata along with genotypes VB-28 and VB-23 exhibited higher yield and yield contributing traits. High values of GCV and PCV were observed for yield per tree, fruit pulp weight, fruit weight, seed weight, number of fruits per tree, ascorbic acid, skull weight, and reducing sugar. High heritability (in broad sense) along with high estimates of genetic advance (% of mean) was observed for almost all the characters viz. yield per tree, fruit weight, fruit pulp weight, skull weight, seed weight per fruit, T.S.S., ascorbic acid and total sugar. The present study also revealed the presence of great amount of genetic variability which offers bright prospects for its improvement in near future.

Published in : HortFlora Research Spectrum, 5 (2) : 112-119 (June 2016)

5. Response of China Aster (*Callistephus chinensis* L. Nees) cv. Poornima to Different Levels of Nitrogen and Phosphorus in Medium Black Soil

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ABSTRACT : The present investigation was carried out to explore the possibility of peach genotypes grafted on peach seedling rootstocks for their phenological traits to elucidate the desirable genetic stuff. Twenty one genotypes including released varieties, land races and introductions were used in this study for assessment of the traits for yielding the better one through procreation. The study was conducted from 2011 to 2013 at orchard of Department of Fruit Science, PAU, Ludhiana, Punjab. A significant variation was recorded between the traits viz., leaf length (LL), leaf breadth (LB) and leaf area (LA) among different peach genotypes. Leaf length was maximum (156.83 mm) in Tropicsweet and minimum in Redhaven (94.83 mm). The flower size (FS) was recorded maximum (44.00 mm) in genotype Shan-i-Punjab whereas the minimum was in genotype Punjab Nectarine (18.50 mm). Leaf length showed highest ($r=0.71$) correlation with leaf breadth, whereas, leaf breadth was positively and significantly correlated with leaf area, flower disc size, style number but negatively and significantly correlated with number of filaments, filament and style length. Hierarchical cluster analysis obtained by using DAR win 5.0 software allowed the assessment of dissimilarity relationship among the peach genotypes. The boots trap for each of the genotypes for different characters was run for 5000 times which confirmed the authenticity of similarity and dissimilarity among them. UPGMA produced Dendrogram initially have three main clusters, cluster B being the largest having 9 genotypes.

Published in : HortFlora Research Spectrum, 5 (2) : 120-123 (June 2016)

6. Influence of Pre-Harvest Foliar Application of Nutrients and Growth Regulators on Fruit Quality of Litchi (*Litchi chinensis* Sonn.) cv. Rose Scented

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ABSTRACT : In order to maintain and enhance fruit quality and storability of litchi the present study was conducted at Horticultural Research Centre, GBPUA&T, Pantnagar, Uttarakhand during 2013-14 and 2014-15. Different pre-harvest sprays of nutrients and growth regulators were sprayed individually or in combination with each other, viz., calcium chloride @ 0.5%, potassium sulphate @ 0.5%, borax @ 1%, putrescine @ 40ppm, salicylic acid @ 100ppm and ascorbic acid @ 0.2% on litchi to ascertain their effect on fruit chemical characters. The analytical study of the data revealed that treatment with a combination of $\text{CaCl}_2 + \text{K}_2\text{SO}_4 + \text{Borax}$ @ 0.5 % + 0.5 % + 1.0 % had best effect on TSS (21.05 °B), titratable acidity (0.44 %), ascorbic acid (28.16 %), total sugars (15.39 %), reducing sugars (11.48 %), non-reducing sugars (3.90 %) and TSS: acid ratio (31.62).

Published in : HortFlora Research Spectrum, 5 (2) : 124-128 (June 2016)

7. Effect of Organic Manures on Growth, Yield and Quality of Radish (*Raphanus sativus* L.) cv. Pusa Desi

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ABSTRACT : A field trial was conducted during 2014-15 in winter season at Horticultural Research Centre, Chauras Campus, H.N.B Garhwal University, Srinagar (Garhwal), Uttarakhand to study the effect of organic manures on growth, yield and quality of radish cv. Pusa Desi. The experiment consisted of 19 treatments with control, laid out in Randomized Block Design with three replications. The quantitative parameters were recorded at 15 days interval. The maximum plant height (36.13 cm) number of leaves (16.88) at 60 days, leaf length (17.17 cm), total plant height (58.68 cm) and root length (20.04 cm) were recorded with the combined application of organic manures (Vermicompost 50% + Poultry manure 50%). Whereas, the total plant weight (305.04 g), fresh weight of leaves (134.77 g), root weight (197.07 g), root diameter (5.74 cm) and yield/ha (36.42 t/ha) were significantly maximum with the combined use of (FYM 100% + Vermicompost 100% + Poultry manure 100%). The quality parameters like T.S.S (6.15 °B) and Vit.C (18.13 mg/ 100g) were recorded maximum in combined application of FYM 50% + Poultry manure 50% and acidity (0.64) was maximum due to the FYM 100%. The study suggested that the combined application of Vermicompost 50% + Poultry manure 50% or (F.Y.M + Vermicompost + Poultry manure) were highly beneficial for all of the growth, yield and quality parameters.

Published in : HortFlora Research Spectrum, 5 (2) : 129-133 (June 2016)

8. Expression of Heterosis and Combining Ability Analysis in Intervarietal Crosses of Eggplant (*Solanum melongena* L.)

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ABSTRACT : Thirty six genotypes (twelve lines, two testers and twenty-four F₃s) of eggplant were studied for heterosis and combining ability. The crosses PR × PS and BARI × PS revealed highest economic heterosis for most of the traits investigated including the yield and yield attributing characters. The crosses PR × PS, BARI × PS, PB 69 × PS and Punjab Sadabahar × PU demonstrated highly significant heterosis, over the standard cultivar, Pant Samrat. The parent PB 69 exhibited highest positive significant gca followed by PB 66 and PB 67, whereas crosses PB 69 × PU, PB 60 × PS, PB 68 × PU, PR × PS and KS 331 × PS showed significant sca effects for total yield.

Published in : HortFlora Research Spectrum, 5 (2) : 134-140 (June 2016)

9. Study on the Effect of Nutrient Management on Seed Crop of Okra var. Parbhani Kranti

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ABSTRACT : The sixteen treatments were compared in randomized block design (RBD) with three replications. The seed was sown at spacing of 45 cm x 15 cm on ridges. The seed-pods were picked before shattering through successive pickings as and when required. The studies were concentrated on crop-stand, plant-growth and development traits, crop productivity, seed quality and net profit (₹) per hectare. It is inferred from the findings that the seed crop of okra cv. Parbhani Kranti during the spring-summer (Zaid) season should be cultivated in western Uttar Pradesh by applying nitrogen @ 100 kg ha⁻¹, phosphorus @ 40 kg ha⁻¹ and Azotobacter @ 2 kg ha⁻¹.

Published in : HortFlora Research Spectrum, 5 (2) : 141-144 (June 2016)

10. A Technology for Management of Litchi Mite using IPM Modules under Subtropics of Bihar

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ABSTRACT : Litchi mite is the threat to litchi growers as both nymphs and adults damage the leaves, inflorescence and young developing fruits. Therefore, keeping in view the importance of litchi mite, *Aceria litchii* field trial was conducted at ICAR-NRCL, Muzaffarpur to manage the pest. Experiment was laid out in RBD design with seven treatments comprised of pruning of affected twigs (July & October) and miticides (chlorfenapyr & propargite) sprayed twice in July and once in October months to evaluate the efficacy of various integrated approaches. Results revealed that initial mite infestation ranged from 97.33 to 98.80%. No mite infestation was recorded at flowering stage in pruning and removal of affected twigs followed by two spraying of chlorfenapyr 10 EC (0.03%) at 15 days interval during July and again pruning in October with one spraying of Chlorfenapyr followed by spraying of propargite 57 EC (0.17%) with 1.33% mite infestation. The higher mite infestation was noticed during August (50.00) to November (80.00) and again the population start increasing from February onwards on new shoots.

Published in : HortFlora Research Spectrum, 5 (2) : 145-148 (June 2016)

11. Evaluation of Fertilizers and Micronutrients for the Control of Mango Hopper

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ABSTRACT : Effect of fertilizers and micronutrients on hoppers showed that the treatment 1.5 kg N + 1 kg P₂O₅ and 1 kg K₂O along with Cu, Zn, B and S applied was most effective in checking multiplication of hopper population, whereas the treatment with 2 kg N only was least effective as maximum hopper population (20.06 hopper per panicle in 3rd observation) was recorded here. However, in rest of the treatments, hopper population was more or less equal to control. Maximum fruit set (189.75 and 139.25 fruits per 100 panicles) was observed in the treatment where 1.5 kg N, 1.0 kg P₂O₅ and 1 K₂O were used along with Cu, Zn, B and S that was significantly different from control followed by the fruit set in recommended dosage. Minimum fruit set (116.00 and 105.25 per 100 panicles) was recorded in control. Fruit harvested and fruit weight were again highest (110.25 and 21 kg per 100 panicles) where 1.5 kg N, 1.0 kg P₂O₅ and 1 kg K₂O were used along with Cu, Zn, B and S followed by fruit yield in recommended dosage. Lowest fruit number and fruit weight (100.25 and 16.30 kg per 100 panicles) were observed in treatment where only 2.0 kg N was used.

Published in : HortFlora Research Spectrum, 5 (2) : 149-152 (June 2016)

12. Genetic Variability, Heritability and Genetic Advance in Chilli (*Capsicum annuum* L.)

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ABSTRACT : The present investigation was carried out to find out the genetic variability, heritability and genetic advance in chilli (*Capsicum annuum* L.) in Central Uttar Pradesh during Rabi season. The experiment was laid out in randomized block design with three replications. Transplanting of seedlings was done at spacing of 45x60 cm. The observations were recorded on five plants per plot for days to flowering, plant height, number of branches/plant, number of fruits/plant, leaf area, pedicle length, fruit length, fruit width, days to first harvest and fruit yield per plant. The genotypes Azad Mirch-1, Sel-16 and 7919 performed better in terms of leaf area with maximum values (116.38) which succeeded by fruit yield per plant red ripe (85.40), fruit width (38.23), number of branches per plant (34.43), days to 50% flowering (32.46), days to first harvest (27.83), pedicel length (27.78), fruit yield/plant (17.73), fruit length (16.64) and plant height (12.76) for genetic advance as % of mean.

Published in : HortFlora Research Spectrum, 5 (1) : 153-156 (June 2016)

13. Evaluation of number of irrigations on Hopper Management

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ABSTRACT : Effect of different number of irrigations on hoppers showed that maximum hopper populations were recorded in nine irrigations where one irrigation each in October, December and February and two irrigations each from April to June were given, whereas hopper population were at par in five irrigations where two irrigations each in April and May and one irrigation in June were given, in two irrigations where one irrigation each in April and May were given and in control where no irrigation was done. The fruit set was significantly different in all treatments as compared to control whereas maximum fruit set (190.42 and 126.42 fruits/panicles) was recorded in five irrigations. Fruits harvested were maximum (108.57 fruits/100 panicles) in five irrigations that were significantly different from control. Weight of fruits per 100 panicles was maximum (18.80 kg) in five irrigations, which were at par with the two irrigations, and nine irrigations, however all these were significantly different from the control where minimum (16.38 kg/100 panicles) fruit weight was recorded.

Published in : HortFlora Research Spectrum, 5 (2) : 157-160 (June 2016)

14. Effect of Different Nitrogen Doses, *Azotobactor*, PSB and PMB on Plant Vigour, Flowering and Yield of Petunia (*Petunia hybrida*) var. Picotee

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ABSTRACT : The present experiment was conducted to study the effect of bio and chemical fertilizers on plant vigour, flowering and yield of petunia (*Petunia hybrida*) var. Picotee in the Department of Horticulture, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, (U.P.) during the winter season 2014-2015. The results revealed that treatments T₁₃ (Azotobactor + PSB +PMB + 100% doses of NPK) had significant response most of the traits studied. The maximum plant height (29.80 cm), number of leaves/plant (600.60) number of branches/plant (20.00), plant spread (54.30 cm), first flower bud emergence (53.06), diameter of flower/(8.26 cm), number of flowers/plant (76.93), weight of fresh flower (1.05g) and weight of dry flower (0.81g) were produced by the treatment T₁₃ (Azotobactor + PSB +PMB + 100% doses of NPK).

Published in : HortFlora Research Spectrum, 5 (2) : 161-164 (March 2016)

15. *Picrorhiza kurroa* Royle ex Benth: A Plant with Pharmacological Value

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ABSTRACT: Western Himalaya is a reservoir of plants that constitutes a large number of economically important species of both pharmaceutical and medicinal importance. Many of these plant species have become rare and endangered and are in the verge of extinction due to over exploitation. One of such plant is *Picrorhiza kurroa* which is high altitude plant with a large number of therapeutic properties. Therefore, it is extremely important to explore the different methods of propagation and conservation of *P. kurroa* under in vitro conditions and also in its natural habitat.

Published in : HortFlora Research Spectrum, 5 (2) : 165-169 (June 2016)

16. Use of pheromone traps for eco friendly management of fruit fly in Parwal—A Success Story

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ABSTRACT : Proper and prolonged humid conditions and sandy soil due to nearby land of river Ganga in Hastinapur block of Meerut district favours the cultivation of cucurbits. Thus, growing of Parwal has been proved as a best alternate to replace mono culture of sugarcane crop in the area where majority of farmers having small land holdings. Fruit fly is a serious pest not only of cucurbits but other vegetable and fruit crops also causing huge losses to farmers in Meerut district. In spite of using hazardous pesticides, farmers are bound to bear about 25 – 30 % yield loss every year due to the attack of fruit fly. Various front line demonstrations of cue lure containing pheromone traps were laid out by KVK Hastinapur, Meerut at the fields of parwal growers of the area during three consecutive years (2012 – 2014) to introduce and promote the eco friendly management technology of fruit flies by installation of 5 traps/ acre covering 30 acre area. The technology was found feasible, cheaper as well as easy to adopt at farmer's field. An average of 23.35 per cent increased yield was observed resulting ₹ 27182.5 average increased income per hectare comparing with plots under farmer's practice where traps were not installed.

Published in : HortFlora Research Spectrum, 5 (2) : 170-172 (June 2016)

17. Effect of Organic Manure and Inorganic Fertilizer on Growth and Yield of Onion (*Allium cepa* L.) cv. Pusa Red

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ABSTRACT : The experiment was laid out with nine treatments and three replications in Randomized Block Design. Maximum plant height, bulb size and weight was observed with the application of Urea 50% +

Vermicompost 50% per plot. Whereas, the maximum bulb weight was recorded with application of Urea 50% + Vermicompost poultry manure 25% each per plot. Application of different organic manures on onion bulbs is useful for improving the growth and yield characteristics.

Published in : HortFlora Research Spectrum, 5 (2) : 173-174 (June 2016)

18. Lasoda that Blooms on Tree Trunk-A Report

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ABSTRACT : Lasoda (*Cordia myxa*) grows very common in tropical regions. Its tree flowers in March-April. Its inripe fruits are very much used for pickling. Ripe fruits of *lasoda* are rich source of minerals. Its leaves are used as for fodder. Usually Lasoda bears terminally, but some times bearing is noticed directly on the tree trunk, the bearing of flowers and fruits on trunk is termed as cauliflory.

Published in : HortFlora Research Spectrum, 5 (2) : 175-176 (June 2016)

ICV : 27.39

HORTFLORA RESEARCH SPECTRUM

GIF : 0.471

IBIF : 2.8

NIIF : 2.14

www.hortflorajournal.com

ISSN : 2250-2823

Published under the Auspices of :

Biosciences and Agriculture Advancement Society (BAAS)

“Shivalay” 98-A Somdutt Vihar, Jagrati Vihar, Garh Road, Meerut-250004

E-mail : hortfloraspectrum.india@gmail.com; submit.hortflorajournal2013@gmail.com

CONTRIBUTOR'S DECLARATION

HortFlora Research Spectrum (HRS)

(International Impact: ICV 27.39; GIF: 0.471; IBI Factor: 2.8; NJIF: 2.14, GSCIF: 0.364; ISI-IF: 3.445)

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IndexCopernicus Value (ICV), Poland: 27.39, Global Impact Factor (GIF): 0.471; International Society of Indexing (ISI) IF-3.445
New Journal Impact Factor (NJIF): 2.14, Global Science Citation Impact Factor (GSCIF): 0.364, InfoBase Index (IBI) Factor: 2.8



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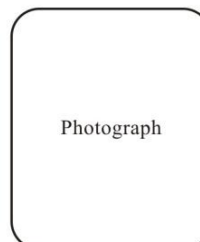
ISSN : 2250-2823

Published under the Auspices of
BIOSCIENCES & AGRICULTURE ADVANCEMENT SOCIETY (BAAS), Meerut (Regd.)
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3. Kapil, R.N. and Arora, S. (1990). Some fascinating features of orchid pollen. *J. Orchid Soc.*, 4 (1): 9-28.

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E-mail: hortfloraspectrum.india@gmail.com, editorhortflora.vku@gmail.com
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Printed at : New Rishabh Offset Printers, Delhi Road, Meerut.

ISSN 2250-2823

