

Resume of Dr. Sunil Kumar

1. Personal Details

Name : Dr. Sunil Kumar
Designation : Scientist (Fruit Science)



2. Educational Qualification

Ph.D. (Horticulture) **2020**

Division of Fruits & Horticultural Technology,
ICAR- Indian Agricultural Research Institute, New Delhi, India- 110 012
Title of Thesis: Morphogenetic Characterization of Kinnow Mutants

M.Sc. (Horticulture) **2015**

Division of Fruits & Horticultural Technology,
ICAR- Indian Agricultural Research Institute, New Delhi, India- 110 012
Title of Thesis: Effect of Different Rootstocks on Kinnow Mandarin

B.Sc. (Agriculture) Honours **2013**

Rajasthan College of Agriculture,
Maharana Pratap University of Agriculture & Technology, Udaipur, Rajasthan, India-313001

3. Scholarship/Fellowships

1. **National Merit Scholarship** for 4 year during **B.Sc.**
2. **Indian Council of Agricultural Research-Junior Research Fellowship (ICAR-JRF)** during **M.Sc.**
3. **Indian Agricultural Research Institute-Senior Research Fellowship (IARI-SRF)** during **Ph.D.**

4. Awards & Honors

1. Journal of Horticultural Science and Biotechnology – Journal Prize 2019. (**A monetary prize of ₹500**).
2. Kanwar Virender Singh Memorial All India Best Publication Awards in Fruit Science - 2018 (**cash prize of ₹ 1,000 and a plaque**).

5. Publications

(A). Research Articles

1. **Kumar, S., Awasthi, O. P., Dubey, A. K. and Sharma, R. M. (2017).** Effect of different rootstocks on growth, leaf sclerophylly and chlorophyll fractions of Kinnow mandarin. *Indian Journal of Horticulture*, 74 (4): 505-509.
2. **Kumar, S., Awasthi, O. P., Dubey, A. K., Pandey, R., Sharma, V. K., Mishra, A. K. and Sharma, R. M. (2018).** Root morphology and the effect of rootstocks on leaf nutrient

- acquisition of Kinnow mandarin (*Citrus nobilis* Loureiro × *Citrus reticulata* Blanco). *The Journal of Horticultural Science and Biotechnology*, 93 (1): 100-106.
3. Kumar, C., Singh, S. K., Pramanick, K. K., Verma, M. K., **Kumar, S.** and Pradhan, S. (2019). Comparison of foliar photosynthetic pigments in indigenous Himalayan *Malus baccata* (Shillong) with different apple cultivars. *International Journal of Chemical Studies*, 7 (2): 1602-1605.
 4. **Kumar, S.**, Awasthi, O. P., Dubey, A. K., Dahuja, A. and Singh, A. (2019). Influence of rootstocks on growth, yield, quality and physiological activity of 'Kinnow' mandarin grown in a semi-arid region. *Fruits*, 74 (5): 205-213.
 5. **Kumar, S.**, Awasthi, O. P., Singh, A., Sharma, R. R. and Singh, K. (2020). Physiological alteration in Kinnow developed through physical and chemical mutagen. *Indian Journal of Horticulture*, 77 (2): 267-272.
 6. **Kumar, S.**, Awasthi, O. P. and Pushkar, S. (2021). Hormonal changes in gamma irradiated and EMS induced mutants of Kinnow mandarin (*Citrus nobilis* Loureiro × *Citrus deliciosa* Tenora). *International Journal of Chemical Studies*, 9 (1): 1137-1140.
 7. **Kumar, S.**, Awasthi, O. P., Singh, A. and Theivanai, M. (2021). Characterization of EMS induced putative Kinnow mandarin mutants for growth, yield and quality traits. *International Journal of Current Microbiology and Applied Sciences*, 10 (01): 2145-2154.
 8. **Kumar, S.**, Awasthi, O. P., Bharadwaj, C., Dubey, A. K., Kumar, C. and Singh, K. (2021). Molecular characterization of Kinnow mutants. *Indian Journal of Agricultural Sciences*, 91 (3): 364-368.
 9. **Kumar, S.**, Awasthi, O. P., Dubey, A. K., Singh, A. and Pandey, R. (2021). Impact of ionising irradiation on physio-biochemical traits of Kinnow mandarin. *Indian Journal of Horticulture*, 78 (2): 149-154.
 10. **Kumar, S.**, Awasthi, O. P., Sharma, R. M. and Pradhan, S. (2021). Physiological and biochemical responses of Kinnow mandarin to EMS induced mutagenesis. *Indian Journal of Agricultural Sciences*, 91 (7):

(B). Review Articles

1. Patidar, O. P., Gautam, C., Tantuway, G., **Kumar, S.**, Yadav, A. Meena, D. S. and Nagar, A. (2016). RNA-guided Genome editing tool CRISPR-Cas9: its applications and achievements in model and crop plants. *Journal of Pure and Applied Microbiology*, 10 (4): 3035-3042.
2. Singh, K., **Kumar, S.**, Pradhan, S. and Patidar, O. P. (2018). Organic Farming for Sustainable and Nutritional Fruit Production in India: A Review. *International Journal of Current Microbiology and Applied Sciences*, 7 (5): 3033-3039.
3. Pandey, K., Dangi, R., Prajapati, U., **Kumar, S.**, Maurya, N. K. Singh, A. V., Pandey, A. K., Singh, J. and Rajan, R. (2019). Advance breeding and biotechnological approaches for crop improvement: A review. *International Journal of Chemical Studies*, 7 (1): 837-841.

(C). Books/Edited Books

1. **Kumar, S.** and Yadav, A. (2017). *Treasure of Fruit Science*. New Vishal Publication, New Delhi.

(D). Book Chapters (English)

1. Verma, M. K., Yadav, A. Deepak, N., Usha, K. and **Kumar, S.** (2017). Macadamia nut

- (*Macadamia integrifolia*). In *Minor Fruits: Nutraceutical Importance and Cultivation*. S.N. Ghosh (ed). **Jaya Publishing House**, Delhi-110095 (India). pp. 583-607.
2. Dhakar, M. K., Das, B., **Kumar, S.** and Kundu, M. Pear (*Pyrus pyrifolia* L.): A Potential Source of Livelihood for Primitive Tribes of Jharkhand. In *Fruits for Livelihood: Production Technology and Management Practices*. A.K. Dutta and B. Mondal (ed.), **Agrobios (India)**. pp. 215-224.
 3. **Kumar, S.**, Baghel, M., Yadav, A. and Dhakar, M. K. (2018). Postharvest Biology and Technology of Berries. In *Postharvest Biology and Technology of Temperate Fruits*. Mir, S., Shah, M., Mir, M. (eds), **Springer, Cham**. pp. 349-370.
 4. Awasthi, O. P. and **Kumar, S.** (2019). Special Cultural Practices. In *Strawberries: Production, Postharvest Management and Protection*. R. M. Sharma, Rakesh Yamdagni, A. K. Dubey, Vikramaditya Pandey (ed.), **CRC Press**. pp. 359-363.
 5. Kamatyanatti, M., Baghel, M. and **Kumar, S.** (2019). Chironji. In *Origin and Biological Diversity of Horticultural Crops*. K.V. Peter (eds.), Brillion Publishing, New Delhi. pp. 63-79.
 6. Yadav, A., **Kumar, S.**, Gujjar, P. S., Deepak, N., Bandana and Palpandian, P. (2020). Released Fruit Varieties and Hybrids in India. In *Innovative Techniques for Horticulture Developments*. K.V. Peter (eds.), **Brillion Publishing**, New Delhi. pp. 251-302.
 7. Pradhan, S., Panigrahi, I., **Kumar, S.** and Maurya, N. K. (2021). Chemical Treatments for Shelf Life Enhancement of Stone Fruits. In *Production Technology of Stone Fruits*. Mir, M., Iqbal, U. & Mir, S. (Eds.). **Springer**. pp. 253-272.

(E). Book Chapters (Hindi)

1. ओम प्रकाश अवस्थी, महेंद्र कुमार वर्मा एवं **सुनील कुमार** (2017). “किन्नो के उत्पादन की उत्तम तकनीक” फल उत्पादन की नवीनतम प्रौद्योगिकियाँ, संजय कुमार सिंह (संकलन), फल एवं औधानिकी प्रौद्योगिकी संभाग, भा.कृ.अ.प. – भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली. प्रष्ट संख्या, 155-162.

(F). Popular Article (English)

1. **Kumar, S.** and Awasthi, O. P. and Singh, A. Kinnow Mandarin enriching citrus industry. *Indian Horticulture*, May-June, 2016, pp. 34-36.
2. **Kumar, S.**, Singh, K. and Pradhan, S. Importance of wild species for the improvement of fruit crops. *Kerala-Karshakan*, April, 2018, 5(10): 12-17.
3. Singh, K., **Kumar, S.** and Jangra, A.. Berries Healthiest Foods on Earth. *Kerala-Karshakan*, April, 2018, 5(10): 18-21.
4. Dayal, V., **Kumar, S.**, Boopathi, T., Dutta, S. K., Saha, S., Lungmuana and Singh, S. B. Dragon fruit: a potential source for nutritional security. *Indian Horticulture*, May-June, 2018, pp. 32-35.

(G). Popular Article (Hindi)

1. **सुनील कुमार** एवं ओ. पी. अवस्थी. किन्नो संतरा: भारत के उत्तर-पश्चिमी मैदानी क्षेत्रों के लिए वरदान, *कृषि विस्तार समीक्षा*, जनवरी- मार्च, 2017, प्रष्ट संख्या, 19-22.
2. के. उषा, **सुनील कुमार** एवं अशोक यादव. आम की जैविक खेती में एकीकृत कीट प्रबंधन, *प्रसार दूत*, मार्च, 2017, प्रष्ट संख्या, 14-16.
3. अशोक यादव, **सुनील कुमार** एवं के. उषा. जैविक आम में कीट व रोग नियंत्रण, *फल-फूल*, जनवरी-फरवरी, 2018, प्रष्ट संख्या, 28-30.

4. सुनील कुमार, ओमप्रकाश अवस्थी एवं कुलदीप सिंह. नींबूवर्गीय फलों में एकीकृत पोषकतत्व प्रबंधन, *प्रसार दूत*, मार्च, 2018, प्रष्ट संख्या, 35–38.
5. कुलदीप सिंह, सुनील कुमार एवं ओमप्रकाश अवस्थी. ड्रैगन फल की आधुनिक खेती, *प्रसार दूत*, मार्च, 2018, प्रष्ट संख्या, 32–34.

(H). Chapters in Conferences/Seminars/Symposia and Winter Schools

1. Ashok Yadav, K. Usha, **Sunil Kumar**, Arvind Nagar, Abhay Kumar Gaurav and Sandeep Kumar. “Career Opportunities in Horticulture” in National Conference on Horticultural Education, Present Status and Future Prospects, held on 24th September 2016 at ICAR- Indian Institute of Horticultural Research, Hesaraghatta Lake Post, Bengaluru (KN). pp. 42-46.
2. O. P. Awasthi and **Sunil Kumar**. “Post-Harvest losses in fruit crops and their management strategies” Lead lecture delivered in an International Congress on “Post-Harvest Technologies of Agricultural Produce for Sustainable Food and Nutritional Security” organized by Integral University, Lucknow (Uttar Pradesh) from 10-12th November 2016, pp.38-45.
3. O. P. Awasthi and **Sunil Kumar**. Indigenous genetic resources of fruit crops and their utilization in improvement. *In Winter School on Recent Advances in Breeding Approaches and Varietal Development of Perennial Horticultural Crops*. Organized by Division of Fruits & Horticultural Technology, ICAR-Indian Agricultural Research Institute, New Delhi, 12th January to 1st February, 2017, pp. 15-24.
4. O. P. Awasthi and **Sunil Kumar**. Minimization of Pesticide Residues in Horticulture Produce for Ensuring Higher Return in Export. *In Winter School on Doubling Income through advance Approaches for Fruits and Vegetables in the Arid Region*. Organized by ICAR- Central Institute for Arid Horticulture, Bikaner, 28th October to 17th November, 2017, pp. 333-339.
5. O. P. Awasthi, **Sunil Kumar**, Kuldeep Singh and M. Theivanai. “Role of Rootstocks in Mitigating Abiotic Stress and Quality Fruit Production” Lead lecture delivered in “National Conference on Arid Horticulture for Enhancing Productivity and Economic Empowerment” organized by Indian Society for Arid Horticulture, ICAR- Central Institute for Arid Horticulture, Bikaner (Raj.) from 27-29th October, 2018, pp. 99-102.
6. Awtar Singh, O. P Awasthi and **Sunil Kumar**. “Integration of Clonal Selection with Biotechnological Techniques for Crop Improvement in Minor Citrus Fruits” Lead lecture delivered in “National Conference on Arid Horticulture for Enhancing Productivity and Economic Empowerment” organized by Indian Society for Arid Horticulture, ICAR- Central Institute for Arid Horticulture, Bikaner (Raj.) from 27-29th October, 2018, pp. 84-90.
7. O. P. Awasthi, Awtar Singh, **Sunil Kumar** and Kuldeep Singh. “Advances in rootstock research and its role in mitigating abiotic stress in fruit crops.” Lead lecture delivered in “National Seminar on Technological Advancement in Horticulture for 21st Century” organized by College of Horticulture and Forestry, Jhalrapatan, Jhalawar (Raj.) from 18-19th February, 2019, pp. 34-40.
8. Awtar Singh, O. P Awasthi and **Sunil Kumar**. “Advancement in rootstock breeding in horticultural crops.” Lead lecture delivered in “National Seminar on Technological Advancement in Horticulture for 21st Century” organized by College of Horticulture and Forestry, Jhalrapatan, Jhalawar (Raj.) from 18-19th February, 2019, pp. 58-71.

(I). Abstracts in Seminars/Symposia/Conferences and Congress

1. Ashok Yadav, S. K. Singh, Bandana, Arvind Nagar and **Sunil Kumar**. “Impact of climate change in horticultural crops: its adaptation and mitigation” in National Symposium on Modern Agro- Technologies for National Security and Health held at Dr. YSPUHF, Solan (H.P.) from 21-23 April 2015, pp. 267.
2. **Sunil Kumar**, Awasthi, O. P., Dubey, A. K. and Renu Pandey. “Root morphological variations in different citrus rootstocks” in National Symposium on Sustainable Citrus Production: Way Forward, held at CCRI, Nagpur (Maharashtra) from 27-29 November 2015, pp. 46-47.
3. **Sunil Kumar**, O. P. Awasthi, A. K. Dubey, Renu Pandey and R. M. Sharma. “Studies on the root morphological variation in different citrus species” in 7th Indian Horticulture Congress 2016 held at IARI, Pusa campus, New Delhi from 15-18 November 2016, pp. 42-43.
4. O. P. Awasthi, A. K. Dubey, R. M. Sharma, V. K. Sharma and **Sunil Kumar**. “Effect of mutagenic treatments on leaf nutrient composition of Kinnow” in 7th Indian Horticulture Congress 2016 held at IARI, Pusa campus, New Delhi from 15-18 November 2016, pp. 32-33.
5. **Sunil Kumar**, O. P. Awasthi, Kuldeep Singh and Theivanai, M. “Growth, Yield and Quality of Kinnow Mandarin on Different Rootstocks” in Saroj, P.L., Sharma, B.D. and Reddy, S.V.R. (Ed.) 2018, e-book of abstracts, National Conference on Arid Horticulture for Enhancing Productivity & Economic Empowerment, ICAR-Central Institute for Arid Horticulture, Bikaner, 27-29, October, 2018, pp. 51.
6. Kuldeep Singh, R. M. Sharma, **Sunil Kumar**, Theivanai, M and O. P. Awasthi. “Physiology of *Phytophthora nicotianae* Breda de Haan induced stress in citrus rootstock genotypes” in Saroj, P.L., Sharma, B.D. and Reddy, S.V.R. (Ed.) 2018, e-book of abstracts, National Conference on Arid Horticulture for Enhancing Productivity & Economic Empowerment, ICAR-Central Institute for Arid Horticulture, Bikaner, 27-29, October, 2018, pp.87. (**First prize**).
7. **Sunil Kumar**, Om Prakash Awasthi, Kuldeep Singh and Awtar Singh. “Mutation breeding for improvement of kinnow mandarin.” In Abstarct e-book, XIV Agricultural Science Congress, NASC, Pusa, New Delhi, India, 20-23, February, 2019, pp. 563.
8. Awtar Singh, O. P. Awasthi, **Sunil Kumar**, Kuldeep Singh and S. K. Singh. “Colchicine induced ploidy manipulation in Kinnow mandarin and sweet orange: alterations in plant morphology and fruit quality.” In Abstarct e-book, XIV Agricultural Science Congress, NASC, Pusa, New Delhi, India, 20-23, February, 2019, pp. 583.
9. Theivanai M, **Sunil Kumar**, Kuldeep Singh and Reena Prusty. “Breeding for seedlessness in fruit crops: opportunities and obstacles” In Abstarct e-book, XIV Agricultural Science Congress, NASC, Pusa, New Delhi, India, 20-23, February, 2019, pp. 574.
10. Theivanai M, **Sunil Kumar**, Kuldeep Singh and Reena Prusty. “*In-vitro* mutagenesis in fruit crops.” Oral paper presented in “National Seminar on Technological Advancement in Horticulture for 21st Century” organized by College of Horticulture and Forestry, Jhalrapatan, Jhalawar (Raj.) from 18-19th February, 2019, pp. 185-189. (**Second Prize**).
11. Reena Prusty, **Sunil Kumar**, Kuldeep Singh and Theivanai M. “Virus induced gene silencing- A novel technique and its applications in fruit crops.” Oral paper presented in “National Seminar on Technological Advancement in Horticulture for 21st Century” organized by College of Horticulture and Forestry, Jhalrapatan, Jhalawar (Raj.) from 18-19th February, 2019, pp. 199-204. (**First Prize**).
12. Theivanai M, **Sunil Kumar**, Kuldeep Singh and Reena Prusty. “New era of fruit

breeding using CRISPER/Cas technique.” In Misra, A.K., Awasthi, O.P., Shukla, S.K., Dwivedi, Deepa H, Gupta, S., Trivedi, A.K. and Dhiraj (edn.) (2019). Abstracts, Progressive Horticulture Conclave (PHC-2019) on Futuristic Technologies in Horticulture, Indian Society of Horticultural Research & Development (ISHRD), Uttarakhand, December 8-10, 2019, at ICAR- Indian Institute of Sugarcane Research, R.B. Road, Lucknow, India. pp. 93.

13. Reena Prusty, Theivanai M., **Sunil Kumar** and Kuldeep Singh. “*In vitro* mutagenesis in fruit crops: Opportunities and challenges.” In Misra, A.K., Awasthi, O.P., Shukla, S.K., Dwivedi, Deepa H, Gupta, S., Trivedi, A.K. and Dhiraj (edn.) (2019). Abstracts, Progressive Horticulture Conclave (PHC-2019) on Futuristic Technologies in Horticulture, Indian Society of Horticultural Research & Development (ISHRD), Uttarakhand, December 8-10, 2019, at ICAR- Indian Institute of Sugarcane Research, R.B. Road, Lucknow, India. pp. 94.

6. Participation in Trainings/Conferences/Symposia/Winter Schools

1. Participated in 7th Indian Horticulture Congress, Nov. 15-18th, 2016 at New Delhi.
2. Participated in the one day training programme on “Online Access of International Databases, e-Journals, e-Books and use of Koha Library Management Software” organized at Prof. MS Swaminathan Library, ICAR- Indian Agricultural Research Institute, New Delhi during 09/10 November 2017.
3. Participated in 4th Agro-Vision-2019, 28-29, January, 2019 at NASC, Pusa New Delhi.
4. Participated in XIV Agricultural Science Congress, 20-23, February, 2019 at NASC, Pusa, New Delhi.
5. Participated in Indian Horticulture Summit-2020, February, 14-16th, 2020 at Chitrakoot, Madhya Pradesh.
6. Delivered a webinar on Role of Horticulture in Indian Economy on 23rd May, 2020, organized by Jharkhand Rai University, Ranchi.
7. Participated in the National Webinar on Boosting Immunity through Horticulture, 1st-9th September, 2020, organized by Society for Horticultural Research and Development, Ghaziabad, UP, India.

7. Members of Editorial Board

1. International Journal of Food Science and Agriculture, Hill Publishing Group, USA.

8. Membership of Professional Societies

1. Life time member of Horticultural Society of India.