

Brief CV of Dr. Sanjay Kumar, Director CSIR-IHBT, Palampur

Dr. Sanjay Kumar obtained Master's and Ph.D. degrees from **G.B. Pant University of Agriculture and Technology, Pantnagar** and **Indian Agricultural Research Institute, New Delhi**, respectively. Joined CSIR-IHBT as "Scientist B" in 1990; received post-doctoral training at **Texas Tech University (USA)**, **Rothamsted Research (UK)**, and **Kansas State University (USA)**.

Research: Major contributions include discovery of a **novel carbon fixation pathway** and its transplantation in a heterologous system to **reduce photorespiratory losses** leading to photosynthetic gain and yield enhancement (**work lauded by international fraternity**), **discovery of autoclavable superoxide dismutase** from high altitude plant, its **characterisation and modification**, plant adaptation mechanism at high altitude, cloning of genes for secondary metabolite synthesis and imparting stress tolerance, deciphering the mechanisms of, **thorn formation in rose, winter dormancy and drought stress in tea**, enumerating molecular aspects of **secondary metabolism in medicinal plants** for catechins, picrosides, steviosides, shikonins and podophyllotoxin biosynthesis. Significant contributions on **transcriptome and genome sequencing of Himalayan plants** and development of **nutraceuticals using traditional/Ayurvedic knowledge**.

Guided 26 MSc/PhD students, holds several international patents and has 174 research/review articles, book chapters, edited book etc. Some of his key contributions have percolated to book and major reviews also.

Recognition: Fellow of the **National Academy of Sciences**, India; **National Academy of Agricultural Sciences** and **Crop Improvement Society** of India. Bestowed with prestigious **VASVIK Industrial Research Award**; **R.D. Asana Endowment Lecture Award**; Professor **G.V. Joshi Memorial Lecture Award**; **Prof. Shri Ranjan Memorial Lecture Award**, **Ultra International Team Award** for contribution in **Essential Oil Industry**; **Outstanding Alumnus Award** of College of Basic Sciences and Humanities by G.B. Pant University of Agriculture and Technology, Pantnagar, Certificate of Merit in **CSIR Leadership Programme**; and **Young Scientist Award** by **INSA**. He has been chairman/member of several Professional Committees and Task Forces, and has served Editorial Board of several international journals.

New initiatives for society: As Director of CSIR-IHBT since 11th June, 2015, vitalised several initiatives for empowering society/farmers, which include successful procurement and introduction of **Heeng (asafoetida)** and **Monk fruit in the country**, and introduction of **saffron and apple in non-traditional** areas. Promoted **aromatics in mountain farming** to make **Himachal as the top state in country** for production of **essential oil** of wild marigold. **Coordinated multi-institutional projects of CSIR** as Director of Agri, Nutri and Biotech Theme, as well as Nutraceuticals and Nutritionals Missions, for delivery of envisaged outcomes.

Entrepreneurship development: With emphasis on bioeconomy, the numbers of technologies and products surged to **62** during a much shorter period (2015-2021) and transferred several of them on priority for **products availability in the market**. These efforts lead to **brisk increase in MoUs/agreements/MTAs** signed by the institute with entrepreneurs (**from 21 during 1984- 2014 to 325 during 2015-2021**).