SCIENTIST PROFILE

1. Name & Designation : Dr. TK Dangar, Principal Scientist
2. Date of Birth : 30th October, 1955
3. Date of joining ICAR : 15th April, 1986
4. Date of joining the present post : 27th July, 2006
5. Qualification (highest degree) : Ph.D
6. Post Doctoral Research Experience/Training:
    - Bt technology for developing insect resistant crops
    - Emerging trends in microbial control of crop pests
7. Area of Specialization/research interest:
    - Physiology, biochemistry and genetics of PGPR, stress tolerant and entopathogenic microbes.
    - Molecular basis of microbial diversity of rice ecologies.
    - Fermentation technology of agriculturally import microbes.
8. Significant Contribution including products and patents (Five bullets):
    - Plant hormone (IAA, GA, ABA and Cytokinin) production by 4 *Rhizobium* spp. of leguminous tree (N=2) and pulses (n=2) in culture and nodulation of the monocot *Royestonia regia* (bottle palm) by *Rhizobium* spp. were reported for first time.
    - Baculovirus infection of *Xylotrupes gideon*, protozoan *Pseudomonocystis* sp. of *Leucopholis coneophora* and *Pseudomonas aeruginosa* of red palm weevil of coconut. Natural infection of rice pests by Bt, *Metarhizium anisopliae, Beauveria bassiana* etc. were reported for the first time.
    - Phenotypic/molecular characterization and mass production *Metarhizium anisopliae* (n=1) of rhinoceros beetle of waste coconut water; potent Bt (n=3), *M. anisopliae* (N=3) and *Beauveria bassiana* (n=3) of rice leaf folder and brown plant hopper were undertaken and evaluated against the respective pests.
    - Biochemical and molecular basis of toxin and inhibitor production of PGPR (n=523) and the bioagents viz. Bt (n=807) and *Pseudomonas* spp. (n=335) of rice pests were studied for their exploitation for enhancement of crop growth, and control of rice pests and diseases.
    - Characterized osmolytes (sugars, aminoacids, glycine betaine etc.), osmozymes (catalase, SOD, ascorbate peroxidase etc.) and relevant genes (*HKT1; bet1, A, B; gbsA; proA*, *proB, proC; ectA, B, C;* γ-GK, γ-GPR, P5C; *katA katB, katG; pasod; ompC, ompF* etc.) involved in osmotolerance of PGPR and Bt to exploit them under stress situations for nutrition supplement, pest and disease control of rice to sustain rice production.
9. Awards/Honours:
    - Smt. Edita Devid Memorial award (AZRA)
    - Best paper award (AZRA 4 times)
    - AZRA Fellow award
    - Best poster award (Asean PGPR)
    - CRRI Best Worker Award.

10. Publications (10 best):

i. Bal HB, Das S, **Dangar TK** and Adhya TK (2013). ACC deaminase and IAA producing growth promoting bacteria from the rhizosphere soil of tropical rice plants. **Journal of Basic Microbiolology** (DOI.10.1002/jobm 201200445).

ii. Mishra RR, Swain MR, **Dangar TK** and Thatoi HN (2012). Diversity and seasonal fluctuation of predominant microbial communities in Bhitarkanika, a tropical mangrove ecosystem in India. **International Journal of Tropical Biology** 60: 909-924.

iii. Mishra RR, Prajapati S, Das J, **Dangar TK**, Das N and Thatoi H (2011). Reduction of selenite to red elemental selenium by moderately halotolerant *Bacillus megaterium* strains isolated from Bhitarkanika mangrove soil and characterization of reduced product. **Chemosphere** 84: 1231–1237.

iv. Sahoo D, Sahoo S, Das J, **Dangar TK** and Nayak PL (2011). Antibacterial activity of chitosan cross linked with aldehydes and blended with cloisite 30 B. Nano Trends. **A Journal of Nanotechnology and its Application** 10: 1-9.

v. **Dangar TK** (2008). Infectivity and ecology of *Pseudomonas* spp. from natural epizootics in the rice leaf folder, *Cnaphalocrocis medinalis* (*Lepidoptera: Pyralidae*) in India. **Biocontrol Science and Technology** 18: 241-253.

vi. Das J and **Dangar TK** (2008). Microbial population dynamics, especially stress tolerant *Bacillus thuringiensis***,** in partially anaerobic rice field soils during post-harvest period of the Himalayan, island, brackish water and coastal habitats of India. **World Journal of Microbiology and Biotechnology** 24: 1403-1410.

vii. Basu PS, Ghosh AC and **Dangar TK** (1997). *Roystonea regia,* a monocotyledonous tree, bears root nodules. **Folia Microbiologia** 42: 601-606

viii. **Dangar TK** and Abraham VA (1997). *Pseudomonocystis* sp., a eugregarine protozoan pathogen of coconut root grub, *Leucopholis coneophora.* **Biocontrol Science and Technology** 7: 385-391.

ix. **Dangar TK**, Solomon JJ and Pillai GB (1994). Infection of the coconut palm beetle, *Xylotrupes gideon***,** by a nonoccluded baculovirus. **Journal of Plant Diseases and Protection** 101: 561-566.

x. **Dangar TK** and Basu PS (1991). Abscisic acid production in culture by some *Rhizobium* spp. of leguminous trees and pulses. **Folia Microbiologia** 36: 527-532.