Dr. J. K. Saha

Principal Scientist & Head
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Research specialization:

Field of specialization is Soil science (soil chemistry & fertility). Major researches involve understanding trace elements chemistry in soils having implications in their availability and/or toxicity under various agroecosystems influenced by anthropogenic interventions; soil pollution impact assessment; food contamination; micronutrients in soils and plants; soil biological activities; toxicity amelioration; soil quality assessment; integrated nutrient management in crops.

Professional Experience:

Research experience of more than 28 years in the capacity of Scientist, Senior Scientist & Principal Scientist at ICAR in the discipline of Soil Science. Published more than 60 original research articles in renowned international and national Journals, 11 book chapters, several review articles, research bulletins and popular articles.

Major research contributions are:

- Understanding dynamics of cationic and anionic micronutrients availability in acid and paddy soils for better micronutrient management in rice and other crops.
- Refinement of colorimetric method of boron determination in soils for better accuracy and higher precision.
- Development of more precise ion-chromatographic method for determination of bioavailable fluoride in soil
- Development of rapid toxicity assessment methods due to heavy metals in soil, crop and municipal solid waste composts
- Determined critical limits of heavy metals in soils and composts that are protective to both soil biological and human health.
- Assessment of soil pollution in agricultural land near 12 industrial areas of India.
- Development of unique and easy method of compost quality evaluation for safe and maximum recycling of city wastes in agriculture. Quality control limits for city waste compost in Fertilizer Control Order, 1985 have been revised in its 16th edition based on his research outcome.
- Developed remedial measures for reclamation of polluted soils near Ratlam and Nagda industrial areas.
- Understanding interactions of major cations and anions and heavy metals on the uptake and toxicity of chromium in plants.
- Potential and risk assessment of industrial wastes in agriculture.

Awards and Honours:

He is the recipient of S.N. Ranade Memorial Junior Scientist Award for Excellence in Micronutrient Research. Member of Technical Expert Committee constituted by Ministry of Environment, Forest and Climate Change, Govt. of India for developing soil standards and Member of 'National Network of Experts and Resources for Subsurface Investigations and Remediation of Contaminated Sites (NERCS)' at IIT, Delhi. Member Secretary of Quinquennial Review Team constituted by ICAR to review the achievements of Indian Institute of Soil Science, Bhopal and AICRPs/AINP coordinated from IISS, Bhopal. He is member of Mentors' community in the 'Mentoring Research Programme (MRP)' of International Support Network for African Development (ISNAD-Africa; https://isnad-africa.org/), University of Ibadan, Ibadan, Nigeria.

Top Ten publications:

1. **Saha, J.K.,** Mondal, A.K., Hazra, G.C. and Mandal, Biswapati (1991) Depthwise distribution of copper fractions in some Ultisols. Soil Science 151(6): 452-458.
2. **Saha, J.K.** and Singh, M.V. (1997) Effect of temperature on determination of boron by azomethine-H method. Journal of Indian Society of Soil Science 45 (1): 57-61.
3. **Saha, J.K.,** Adhikari, T. and Mandal, Biswapati (1999) Effect of lime and organic matter on the distribution of zinc, copper, iron and manganese in acid soils. Communications in Soil Science and Plant Analysis. 30 (13 & 14): 1819-1829.
4. **Saha, J.K.**, Singh A.B., Ganeshamurthy, A.N., Kundu, S. and Biswas, A.K. (2001) Sulfur accumulation in Vertisols due to continuous gypsum application for six years and its effect on yield and biochemical constituents of soybean (*Glycine Max* L. Merrill). Journal of Plant Nutrition and Soil Science 164: 317-320.
5. **Saha, J.K.** and Kundu, S. (2003) Determination of fluoride in soil water extract through ion chromatography. Communications in Soil Science and Plant Analysis. 34 (1 & 2): 181-188.
6. **Saha, J.K.,** Panwar, N., Singh, M.V. (2010) An assessment of municipal solid waste compost quality produced in different cities of India in the perspective of developing quality control indices. Waste Management 30: 192–201.
7. **Saha, J.K.,** Panwar, N., Srivastava A., Biswas, A. K., Kundu, S., Subba Rao, A. (2010) Chemical, biochemical, and biological impact of untreated domestic sewage water use on Vertisol and its consequences on wheat (Triticum aestivum) productivity. Environmental Monitoring and Assessment 161: 403-412.
8. **Saha, J.K.,** Panwar, N., Singh, M.V. (2010) Determination of lead and cadmium concentration limits in agricultural soil and municipal solid waste compost through an approach of zero tolerance to food contamination. Environmental Monitoring and Assessment. 168: 397-406.
9. **Saha, J.K.,** Panwar, N., Vassanda Coumar, M. (2013) Effect of methods of preparation on distribution of heavy metals in different size fractions of municipal solid waste composts. Environmental Monitoring and Assessment 185: 8815-8821.
10. Halder, D., **Saha, J.K.,** Biswas, A. (2020) Accumulation of essential and non-essential trace elements in rice grain: Possible health impacts on rice consumers in West Bengal, India. Science of The Total Environment 706, 135944.

Book: J.K. Saha, R. Selladurai, M.V. Coumar, M.L. Dotaniya, S.Kundu, A.K.Patra (2017) Soil Pollution - An Emerging Threat to Agriculture. Springer Nature Singapore Pte Ltd. Pages: 386. **ISBN**: 978-981-10-4273-7; **DOI**: 10.1007/978-981-10-4274-4