

# 3<sup>rd</sup> International Conference on **Hydrology & Meteorology**

September 15-16, 2014 Hyderabad International Convention Centre, India

## **Movement of arsenic in a monsoon (monsoon) rice plants cultivated on arsenic contaminated agricultural fields of Nadia district, West Bengal**

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Agriculture in West Bengal (WB) is the means of livelihood of about 65% of the population of the state living in villages. The agricultural economy of the state is heavily dependent on the vagaries of monsoon with an average annual rainfall of 195.98 cm. Approximately, 47% of the gross rice area is grown under rainfed condition. Rice is the main dietary source of arsenic consumption in this region where rice is a staple food. The presence of As in food through the water-soil crop routes has raised a worldwide concern in terms of food safety. This triggers a possible dietary risk to human health and also risk of environmental hazards. Accumulation of As by rice mostly depends on oxidation-reduction potential in plant and soil phosphate concentration, rhizosphere iron plaque formation, microbic activity, and rice selection. In spite of rice varieties, accumulation of As is observed approximately twenty eight times and seventy five folds higher in roots than that of shoot and raw rice of grain. The permissible limit of As in rice grains is 1.0 mg Kg<sup>-1</sup> as per World Health Organization. The present study was conducted in the months of August to November 2013 where the monsoon (monsoon) rice was collected to assess the arsenic concentration in different parts of rice plant. Mainly the mean arsenic concentration (mg/kg) in root of the matured plant was around 36 followed by straw, husk and grains as 16.28, 1.65 and 0.52 respectively. Thus, the present study reveals that rice grown in the study area is safe for consumption, for now. But, the arsenic accumulation in the crop should be monitored periodically as the level of arsenic toxicity in the study area is increasing day by day. Also consumption of rice straw containing considerable amount of arsenic by cattle could potentially lead to increased arsenic levels in meat or milk and thus posing threats to human health.

### **Biography**

Anil Barla is pursuing his second year of PhD.

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