

## Keshab Chandra Sarma (1898–1973) – an eminent mycologist in tea of North East India

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*Keshab Chandra Sarma (1898–1973) was one of the distinguished mycologist in the field of tea research and had notable contributions on various phyto-pathological aspects of tea diseases. He achieved domain knowledge in the identification of significant tea pathogens prevalent in tea plantations of North East India. Although Sarma started his career as a part-time researcher in a premier tea research institute in NE India, due to some sterling qualities like sharpness, intelligence, sincerity, devotion to duty and the capacity to learn and formulate novel ideas despite the lack of a formal higher education, he earned his reputation as tea mycologist during 1950s. Throughout his career, Sarma had published a number of research notes, invited lectures, articles and scientific reports. His comprehensive memorandum on ‘Diseases of tea and ancillary crops of North East India’ is highly valued by the tea-growing communities throughout the world. Under the joint guidance of renowned mycologists A. C. Tunstall and V. Agnihothrudu, Sarma flourished and became a leading scientist in the field of tea pathology and plant protection. Identification of tea diseases in relation to environment and development of effective strategies in disease management were the related areas of his research. This note is an effort to highlight the scientific contributions of Sarma towards tea research and development, for the benefit of present and future generations in biological sciences.*

India has produced great scientists since time-immemorial – J. C. Bose, C. V. Raman, A. P. J. Abdul Kalam, M. S. Swaminathan and C. N. R Rao, to name a few. There are also certain legendary figures with expertise in their concerned disciplines, whose contributions to the scientific world are less known. One such example is Keshab Chandra Sarma, who has made notable contributions in tea research and development.

### Early childhood, family background and education

Sarma was born to Pitambar Dev Sarma and Dimbeswari Devi in 1898 at the remote place of Dergaon, Golaghat district, Assam, North East India. Sarma was a sincere student since his childhood. Unfortunately, he was orphaned at an early age and had to start his life under poor economic conditions, mental distress, fear and misery. One of his well-wishers once took Sarma to the Tocklai Experimental Station (TES), Jorhat and introduced him to A. C. Tunstall, the renowned mycologist there requesting him to help the boy. Tunstall employed him as a part-time worker at a remuneration of Rs 3 per month. Sarma, later, completed the matriculation from the Govt Boys Higher Secondary School, Jorhat in 1916. Unfortunately, due to financial hardship, he

could not complete his higher education and was hired as an assistant scientific worker at TES at monthly remuneration of Rs 15 per month<sup>1</sup>.

### Contributions to tea research

Sarma started his career in TES under the guidance and supervision of A. C. Tunstall and S. C. Bose (who was the Assistant Mycologist in TES). He was advised to do research on various tea pathogens responsible for causing diseases in tea. He always used to report the salient findings of his research, which resulted in the publication of three important memoranda by the Indian Tea Association (ITA), primarily mentioning the salient diagnostic features of tea diseases and management approaches<sup>2-4</sup>. Sarma published the first memorandum in 1947 under the supervision of Tunstall focusing on the ‘Stem diseases of tea in North East India’<sup>2</sup>. He mentioned about 51 pathogens responsible for causing various stem disease of tea<sup>2</sup>. Identification related to fungal pathogens in tea such as *Poria hypobrunnea*, *Glomerella major* and *Nectria cinnabarina* was explained elaborately and diverse tea parasites usually present in the stems of tea. According to the authors, it is more important to manage the plucking of healthy bushes prior to pruning to ensure that plenty of re-

serves are present when the pruning is carried out, which ultimately reduces the die back to a minimum and leads to rapid healing of the wounds. The next memorandum was also published in 1947 by Sarma and Tunstall on ‘Black rot of tea’<sup>3</sup>. The publication made significant contribution to the tea industry since during that time, black rot was considered as one of the devastating diseases in tea-growing areas of NE India. With extensive *in vitro* and field examinations, they were able to detect disease symptoms caused by the black rot pathogen, *Corticium* spp. in tea and suggested control measures<sup>3</sup>. Sarma was later promoted as acting Mycologist in 1952 and subsequently took charge of the Mycology Department in 1955 (ref. 1). His expertise in the diagnosis of tea diseases was commendable. Sarma published his first research article entitled ‘Weak condition of young tea due to defective planting in heavy soils’ in 1954. In 1960, he published the third memorandum on ‘Diseases of tea and associated crops in North East India’<sup>4</sup>. The memorandum became a popular monograph in tea science as it was well-written with good scientific inputs. It provides a diagnosis of major tea diseases in NE India and suggests the adoption of effective strategies towards disease management<sup>4</sup>. Incidence of abiotic stress-related factors such as drought, waterlogging, etc. in

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formulating the secondary diseases in tea plantations are also summarily mentioned in the memorandum.

### Societal attributes

Sarma's role as a social thinker and reformer of the contemporary society is noteworthy. His drama scripts like *Uttanka's Guru Dakshina* and *Man and Society* were immensely popular during those days in Assam. Sarma was also actively associated with the Assam Sahitya Sabha, a prestigious non-profit literary organization of the state, and wholeheartedly served for the restoration of culture and heritage of the common people residing in the region. His contributions towards education of children from the economically weaker sections of so-

ciety cannot be ignored. According to him, financial stress and poverty must not be considered as a barrier to acquiring knowledge and education. Sarma breathed his last on 7 July 1973 at the age of 75 years, leaving behind his wife, four sons and two daughters<sup>1</sup>. For his notable contributions to the Tea Research Association (TRA), the 'K. C. Sarma Memorial Chair' has been set up in his honour. TRA has also initiated the 'K. C. Sarma Memorial Lecture' effective from 24 May 2005.

1. Siddhanta, N. N., K. C. Sarma Memorial Lecture, Tocklai Tea Research Institute, Tea Research Association, Jorhat, Assam, 2005, vol. 1, pp. 1–5.
2. Tunstall, A. C. and Sarmah, K. C., ITA Memorandum No. 16, 1947, pp. 1–77.

3. Tunstall, A. C. and Sarmah, K. C., ITA Memorandum No. 19, 1947, pp. 1–25.
4. Sarmah, K. C., ITA Memorandum No. 26, 1960, p. 68.

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## Erratum

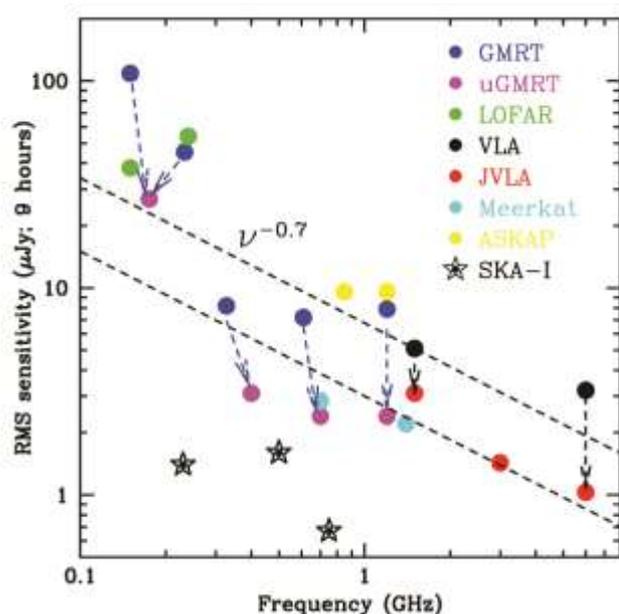
### The upgraded GMRT: opening new windows on the radio Universe

Y. Gupta *et al.*

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In this Article, owing to an error during the production process, the y-axis label has been changed. It should have been 'RMS sensitivity ( $\mu\text{Jy} : 9 \text{ h}$ )' instead of 'RMS sensitivity (mJy : 9 h)'. The correct figure is reproduced below.

The original Article has been corrected online.



**Figure 2.** Comparison between the continuum sensitivities of existing and upcoming radio interferometers, for a 9 h on-source integration. The points show the sensitivities of GMRT, VLA, JVLA, uGMRT, LOFAR, MeerKAT, ASKAP and SKA-1-Mid in the colours and symbols as indicated in the key, for different parts of the spectrum in which these facilities operate (see text for more details). As can be seen, uGMRT will be the most sensitive interferometer in the world at frequencies 250–1500 MHz until the advent of Phase-1 of the SKA.