

## **Study of the Effect of Tea in an Arsenic Exposed Population Using Micronuclei as a Biomarker**

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**ABSTRACT** Arsenic is a paradoxical human carcinogen. In West Bengal it affects around 42.7 million people. Arsenicosis is the effect of arsenic poisoning due to high level of arsenic in body, usually over a long period such as from 5 to 20 years. A total of 100 arsenic exposed individuals and 50 age and sex matched healthy controls were taken for this study. All the individuals have given information regarding their tea drinking habit and addiction history. Arsenic from water, hair and nail samples of all exposed group and control group individuals were studied. Oral mucosal cell was collected from each subject to study micronuclei (MN) from buccal smear. In exposed individuals the mean arsenic content in the drinking water was found to be 66.75 µg/l which was above the WHO recommended level of 10 µg/l. The mean arsenic content in hair and nails of the exposed individuals was found to be significantly higher ( $P \geq 0.01$ ) than the control. In the present study we found that in the individuals belonging to exposure group had a significantly higher buccal smear MN percentage ( $P \geq 0.01$ ) than the control group. It was also found from this study that the individuals who had tea drinking habit had a lower percentage of MN in compare to non-tea drinkers. The individuals who had addiction history, in case of both tea drinkers and non tea drinkers had a higher percentage of MN in compare to the non-addicted person. Therefore micronuclei can serve as an efficient biomarker of arsenic exposure and tea has got protective role against arsenic exposure.