

Antimutagenic Potential of *Allicin* on Sodium Azide Induced Chromosomal Aberrations in *Allium Cepa* Root Tip Cells

Syeda Ashfianaz R^{1*}, Anupriya S²

¹Assistant professor, P.G & Research Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119, Tamil nadu,India.

²Research Scholar, P.G & Research Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119, Tamil nadu,India.

Corresponding author email: ashfia_naz@yahoo.com

From National Conference on Natural Products as therapeutics, Medical Microbiology, Nanobiology and System biology: Current Scenario & Emerging Trends, 'NATCON-2014'.

Post Graduate & Research Departments of Biochemistry, Microbiology, Biotechnology and Bioinformatics, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India.

18-19 September 2014.

American J of Bio-pharm Biochem and Life Sci 2014 September, Vol. 4 (Suppl 1): P 94

ABSTRACT

Higher plants, an important material for genetic tests to monitor various pollutants present in the environment. Among the plant species, *Allium cepa* has been used to evaluate chromosomal aberrations and disturbances in the mitotic cycle. The present study was conducted to evaluate the mutagenic/clastogenic potential of Sodium Azide at a concentration of 200µg/ml on *Allium cepa* root meristem cells and to determine the antimutagenic effect of *Allicin* at doses (5µg/ml) (10µg/ml) (20µg/ml), of which the effective dose was found to be 20µg / ml. The *Allium cepa* test is a cytogenetic short term bioassay that has proved to be a useful tool in basic research to evaluate the genotoxic risk of known chemicals. Sodium Azide induces chromosomal breakage, Anaphase Bridge, sticky chromosomes, but when pretreated with *Allicin* the chromosomal aberrations were lesser. Different parameters of *Allium cepa* such as root shape, growth, mitotic index and chromosomal aberrations can be used to estimate the cytotoxicity, genotoxicity and mutagenicity of environmental pollutant. The *Allium* test has many advantages as genotoxicity screening assay, one being that root cells of *Allium cepa* possess the mixed function oxidase system which is capable of activating promutagens or genotoxic chemicals. *Allicin* since being a dietary antioxidant has free radical scavenging activity. *Allium* vegetables including garlic show that these vegetables have important anti-cancer properties. Interestingly, high intake of garlic (roughly translated as daily intake of this food) has been found to lower risk of virtually all cancer types except cancer of the prostate and breast. However, moderate intake of garlic (roughly translated as several times per week) has been reportedly found to lower risks of only two types of cancer colorectal and renal cancer.