



420/D

**Comparison of cell viability of black, green and white tea (*Camellia sinensis*)
manufactured in Sri Lanka**

A A S Adikary and S S S B D P Soysa

*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of
Colombo, Colombo 8.*

Dietary polyphenols have attracted a great deal of interest because of their perceived ability to act as highly effective chemo preventive and chemotherapeutic agents. Among dietary polyphenols, tea (*Camellia sinensis*) has drawn a major attention since it, is a source of compounds with antioxidative, antimicrobial, antimutagenic and anticarcinogenic properties. However, the cytotoxicity of tea produced in Sri Lanka is not well studied.

The objective of this study was to compare the cell viability among the above three tea extracts. The *Hep-2* cell lines (laryngeal carcinoma) were used for the cytotoxicity assays. The cell viability was evaluated by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay. The *Hep-2* cells were treated at different concentrations of water extracts of black tea (200-1200 $\mu\text{g cm}^{-3}$), white tea (25-500 $\mu\text{g cm}^{-3}$) and green tea (12.5-800 $\mu\text{g cm}^{-3}$) for 24 hours. In all experiments negative control without any tea extracts and positive control with Camptothecin (5mM) was used.

The present results show that the tea extracts exert dose-dependent suppression of cell proliferation with MTT assay. The EC_{50} value for black tea, green and white tea were $683.21 \pm 2.52 \mu\text{g cm}^{-3}$, $58.00 \pm 0.00 \mu\text{g cm}^{-3}$ and $355 \pm 0.01 \mu\text{g cm}^{-3}$ respectively. This concludes that green tea produced in Sri Lanka has more cytotoxic properties against *Hep-2* cells followed by black tea and white tea based on the MTT assay. The percentage cell viability of the positive control was 35% to that of untreated cells.

Acknowledgements: This work is supported by National Science Foundation grant No. RG/2005/HS 17.