

## **Chemoprevention Degree of Polyphenon E from Green Tea in Chemically Induced Mammary Tumors in Sprague-Dawley Female Rats**

**Gal A.F., A.I. Baba, Cosmina Bouari, G. Borza, C. Cătoi**

University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, 3-5 Manastur Street, 3400 Cluj-Napoca, ROMANIA, e-mail: [adrianfloringal@yahoo.com](mailto:adrianfloringal@yahoo.com)

### SUMMARY

Mammary cancer is a leading cause of cancer-related deaths among female dogs and women worldwide [1]. Interestingly, breast cancer rates are higher in women who have adopted western lifestyles in comparison to Asian women who consume mainly plant-based diets [2]. A comparison of Asian and Western diets indicates that, among many differences, green tea consumption is higher in Asian countries [3]. A substantial interest exists for studying the health benefits of green tea due to the antioxidant and anti-inflammatory properties of its polyphenolic components. Green tea polyphenols are mainly derived from epicatechins (epicatechin, epigallocatechin, epicatechingallate, epigallocatechin-3-gallate) [4]. Epidemiological studies suggest that green tea consumption may reduce the risk of cancers including those of the lung, skin, prostate, and breast [3]. According to presented data, we used chemical carcinogenesis model to test the chemoprotective effects of Polyphenon E (Poly E) from green tea. More specifically, our study suggests early data regarding mammary tumor prevention following chemical carcinogenesis in Sprague-Dawley female rats.

Sprague-Dawley female rats were obtained from the Cantacuzino Institute, Romania. The rats have been kept in controlled environmental conditions for temperature and humidity. The animals had free access to standard rodent pelleted diet (Cantacuzino Institute, Romania). Poly E was supplied by Sigma-Redox. For this experiment, Sprague-Dawley female rats were divided into 3 groups as follow: group 1 - rats inoculated with MNU (n=12), group 2 - rats inoculated with MNU (n=10), and control group 3 (n=4). A freshly prepared green tea solution of 0.5% Poly E in tap water was supplied every three days to experimental animals from group 1 beginning at 35 days of age as the sole source of drinking water. Mammary tumor development was monitored weekly by palpation and measured. The rats were not slaughtered yet still to test the efficacy of chronic intake of Poly E in cancer prevention. Mammary tumor incidence in group 2 was 80% of all cases at 6 months from MNU intake comparing to 50% of all cases in group 1 supplied with Poly E in tap water ( $p>0,04$ ). Average tumour size (diameter in cm) was 2,3 cm/tumor in group 2 comparing with only 1,7 cm/tumour in group 1 ( $p<0,04$ ). Concluding, our preliminary data suggests that administration of 0.5% Poly E in drinking water delayed tumor onset and suppressed tumor growth compared to tap water-fed animals.

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