

# **EFFECT OF DIFFERENT CULTIVARS AND PREPARATION METHODS ON VITAMIN E, TOTAL FAT AND FATTY ACID CONTENT OF SOYBEAN**

Vasantharuba, S<sup>1</sup>, Liyanage, P.K<sup>2</sup> and Sivakanesan, R<sup>3</sup>

<sup>1</sup>Department of Agricultural Chemistry, Faculty of Agriculture, University of Jaffna, Jaffna, Sri Lanka

<sup>2</sup>Department of Food Science, Faculty of Agriculture, University of Peradeniya

<sup>3</sup>Department of Biochemistry, Faculty of Medicine, University of Peradeniya

## **ABSTRACT**

Soybean [*Glycine max* (L.) Merr.] has been considered an important crop in the world because of its unique nutritional composition. On an average dry matter basis, soybean contains about 20% fat. Soy fat contains a high proportion of essential fatty acids such as linoleic and linolenic and vitamin E. In this study vitamin E and linoleic and linolenic acid contents of four Sri Lankan soybean cultivars were estimated under different preparation methods. Soybean cultivars differ significantly ( $p < 0.05$ ) in fat content (17.9-21.1%) but not in vitamin E content (5.7-7.4  $\mu\text{g/g}$ ). These cultivars also differ significantly ( $p < 0.05$ ) in essential fatty acids like linoleic acid (91.2-107.6 mg/g of seed) and linolenic acid (13.9-17.9 mg/g of seed) contents. Soybean cultivars showed a significant correlation between vitamin E and linoleic acid and linolenic acid content. Among the 3 different preparation methods, the mean fat content of boiled (18.2%) and baked (18.3%) samples was significantly lower ( $p < 0.05$ ) than the control (PM 25 variety). Vitamin E content of pressure cooked (1.5  $\mu\text{g/g}$  of seed), boiled samples (0.3  $\mu\text{g/g}$  of seed) was significantly lower when compared to the control. Vitamin E was completely lost in baked sample. During pressure cooking, boiling and baking, the vitamin E loss was around 76, 95 and 100% respectively. The linoleic and linolenic acid contents of the control were significantly ( $p < 0.05$ ) higher than all processed samples. The linoleic acid content of the processed samples ranged from 83.9-99.5 mg/g of seed and linolenic acid from 10.9-17.6 mg/g of seed. The percentage loss of essential fatty acids in pressure cooking, baking and boiling was 9, 15 and 15% respectively. Different preparation methods showed a significant positive correlation between vitamin E and essential fatty acids.