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Durian (*Durio zibethinus Murr.*) cultivars as nutritional supplementation to rat's diets

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Abstract

The properties of Mon Thong, Chani and Kan Yao durian (*Durio zibethinus Murr.*) cultivars were compared *in vitro* and *in vivo* studies in order to find the best one as a supplement to antiatherosclerotic diet. Total polyphenols (361.4 ± 35.3 mgGAE/100 g FW), flavonoids (93.9 ± 8.9 mgCE/100 g FW) and total antioxidant capacity determined by DPPH and β-carotene-linoleic acid assays (261.3 ± 25.3 μMTE/100 g FW and 77.8 ± 7.8% of inhibition) were maximal in Mon Thong in comparison with Chani and Kan Yao and showed a good correlation between these three variables ($R^2 = 0.9859$).

Five groups of rats were fed diets supplemented with cholesterol and different durian cultivars. Diets supplemented with Mon Thong and to a lesser degree with Chani and Kan Yao significantly hindered the rise in the plasma lipids (TC – 8.7%, 16.1% and 10.3% and (b) LDL-C – 20.1%, 31.3% and 23.5% for the Chol/Kan Yao, Chol/Mon Thong and Chol/Chani, respectively) and the decrease in plasma antioxidant activity ($P < 0.05$).

Nitrogen retention remained significantly higher in Chol/Mon Thong than in other diet groups. Diet supplemented with Mon Thong affected the composition of plasma fibrinogen in rats and showed more intensity in protein bands around 47 kDa. No lesions were found in the examined tissue of heart and brains. Mon Thong cultivar is preferable for the supplementation of the diet as positively influenced the lipid, antioxidant, protein and metabolic status. The durian fruit till now was not investigated extensively, therefore based on the results of this study durian cultivars can be used as a relatively new source of antioxidants.

Keywords: Durian cultivars; Bioactive compounds; Antioxidant capacity; Rats; Plasma lipid and Antioxidant levels

1. Introduction

The protective effects of natural products are considered, in large part, to be related to the content of various substances: phenolic compounds and to less extend dietary fiber (Martinez-Gonzalez et al., 2002; Suksomtip et al., 2004; Dallongeville et al., 2006; Halvorsen et al., 2006).

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