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EFFECTS OF PREFERENCE AND NUTRITIONAL VALUES OF LOCAL BAMBOO TOWARDS GROWTH PERFORMANCE OF CAPTIVE GIANT PANDAS (*AILUROPODA MELANOLEUCA*) IN ZOO NEGARA, MALAYSIA

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Abstract: Two captive giant pandas *(Ailuropoda melanoleuca)* were observed for nutritional preferences over a period of seven months from 21st May until 31st December 2014 at the Zoo Negara Malaysia. Nutritional analyses were conducted on six local bamboo species which were fed to both pandas. It is evident in the present study that they prefer the culms of *Dendrocalamus asper* followed by culms of *Bambusa vulgaris* and bamboo leaves from *Dendrocalamus asper*, *Bambusa vulgaris* f. *waminii* and *Thyrsostachys seamensis*. Their preferences towards these local bamboo species correspond to the different nutrient values which contained high fibre in the culms and high protein and fat in the leaves. The overall feeding behaviour were well established and the growth performances were satisfactory suggesting that they have successfully adapted to the feeding regime. The pandas were observed to be in good health, active and alert with these bamboo diets throughout the study period.

Keywords: Captive giant panda, *Ailuropoda melanoleuca*, local bamboo, food preferences, nutritional values.

Introduction

The giant pandas *(Ailuropoda melanoleuca)* are members of the order Carnivora due to their unique and simple gastrointestinal tract which is relatively the same as other carnivores. More than 99% of the food consumed by the free-ranging giant panda consists of bamboo (Schaller *et al*., 1985). Anatomically, the giant panda exhibits several features specially adapted for processing and utilising bamboo. For example, they have flattened molars and extensive jaw muscles (Owen, 1980; Eisenberg, 1981). A few modifications were observed on the alimentary tract designed specifically for a bamboo diet which includes horny lining of the esophagus for protection from shards as well as a muscular pyloric region of the stomach for mixing consumed food before it enters the small intestine (Chorn & Hoffmann, 1978; Schaller *et al.,* 1985). The small intestine is a much-reduced segment of the gastrointestinal tract, suggesting that limited digestion occurs in this region (Chorn & Hoffmann, 1978). Overall, the intestinal length ranges from 4.1 to 5.5 times the length of the total length of the head and body (Raven, 1937; Davis, 1964; Schaller *et al.*, 1985). It makes the bamboo passage rate approximately 6-8 hours (Dierenfeld *et al.*, 1982). Histological examination of the giant panda gastrointestinal tract revealed that the large intestine has a significant number of mucous cells (Wang *et al*., 1982), allowing the faecal boluses of giant panda coated with a thin layer of mucus.

Bamboo is in the grass family Poaceae, and has a wide distribution throughout the tropics and subtropics region. In Peninsular Malaysia, 59 species of native bamboo are currently known (Wong, 1989, 1995). However, industrial utilisation of bamboo as a minor forest product