

## A STUDY ON CONTAMINATION OF NITRITE IN EDIBLE BIRD'S NEST (SWIFTLETS)

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**Abstract-** Edible bird's nest (EBN) derived from the hardened saliva of swallows and considered as high-end health food with organic nutrients. Excessive of nitrite were found in EBN imported from Malaysia to China in past few years and still an issue till today. Therefore the purpose of this study is to investigate the source of EBN contamination. EBNs were collected in Aspa Cottage, Kuantan and divided into two treatment (a) treated EBN (tEBN), which exposed to bird soil; (b) untreated EBN (uEBN). The nitrite ( $\text{NO}_2^-$ ) and nitrate ( $\text{NO}_3^-$ ) level were analyzed using ion chromatography for 14 days. Result showed the level of  $\text{NO}_2^-$  and  $\text{NO}_3^-$  level for treated EBN reported significantly more than untreated EBN. The source of  $\text{NO}_2^-$  and  $\text{NO}_3^-$  could have been derived mainly from the bird soil. It is suspected also the color of EBN change from yellowish and brownish simultaneously as levels of  $\text{NO}_2^-$  and  $\text{NO}_3^-$  of EBN increased. Thus, the bird soil could be the source of the  $\text{NO}_2^-$  contamination in EBN.

**Introduction-** Edible bird's nest (EBN) is made from the saliva of swiftlets, which derived from salivary glands under their tongue which is then wound into a half-cup nest and integrates a salivary secretion (a mucin-like glycoprotein), relatively tasteless and usually served in soup or jelly (7). The EBN is actually the nest of male swallows which is functional for them during breeding and nesting season (8). The male swiftlet built the nest approximately 35 days with 7-20 g in weight (5).

Swiftlet industry in Malaysia is facing difficult time since August 2011 because Chinese government has banned on EBN and its products from Malaysia. This is due to high level of nitrite ( $\text{NO}_2^-$ ) spotted in edible bird's nest (1). As the consequences, the edible bird's nest and swiftlet ranching industry in Malaysia has been hit hard. The toxicity of  $\text{NO}_3^-$  is generally due to its reduction to  $\text{NO}_2^-$ . Nitrite ( $\text{NO}_2^-$ ) may react with some amine compounds to form N-nitroso compounds which were found to cause cancer in animal study and thus are suspected carcinogens. Thus, both  $\text{NO}_2^-$  and  $\text{NO}_3^-$  must be monitored to ensure the quality and safety of food products (10).

**Materials and methods-** EBNs and wet bird soil were obtained from a swiftlet farm house located in Aspa Cottage, Kuantan. The samples of tEBN and uEBN samples were prepared in duplicate. Wet bird soil (200 g) and a piece of EBN from swiftlet was moistened with distilled water and placed in a container and labelled with tEBN. The jar was placed in incubator with temperature of 50°C. Color of EBNs also was monitored and the  $\text{NO}_2^-$  and  $\text{NO}_3^-$  content in EBN were analyzed using ion chromatography for 14 days. Meanwhile, uEBN was just analyzed to check the  $\text{NO}_2^-$  and  $\text{NO}_3^-$  contents.

