



Beyond tradition: a novel approach for edible bird nest cleaning and its processing

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Abstract

An edible bird nest is a product of the solidified saliva secretion from a few different swiftlet's species, during the breeding season. But the high impurities in *A. maximus* and *C. esculent* nests make them less ideal to be consumed. Eggshells and guano are the major contaminants contributing to the nitrite and nitrates contents. However, recent studies have shown significant medicinal and cosmetic applications of edible bird nest like anti-viral, anti-inflammatory, enhancing bone strength, and anti-aging. Thus, the high demand for edible bird nest in the global market to explore its potential application has improved from swiftlet farming activities to the cleaning process. Recent studies have shown the use of immobilized enzymes like keratinase for the removal of contaminants. The current review discusses the importance of Swiftlet bird nest, its application, and commercialization.

Keywords Edible bird nest · South Asian countries · EBN industry · Processing and commercialization

Introduction

Edible bird nest

The dried glutinous secretion from male Swiftlet salivary glands during their breeding season is known as edible bird nests (EBN). EBN has long been regarded as a valuable food tonic in China due to its nutritional as well as medicinal properties such as anti-aging (Dai et al. 2020), preventing heart disease, anti-influenza viral (Zulkiffi et al. 2019) and bone strengthening (Tan et al. 2021). Generally, there are

more than 24 species of insectivorous, eco-locating swiftlets worldwide, but only a few develop edible nests that can be consumed. The white nest swiftlet (*Aerodramus fuciphagus*) and the black nest swiftlet (*Aerodramus maximus*) account for most EBN traded globally. The swiftlet species *A. fuciphagus* are usually can be found on the island, but they are now widely scattered on the mainland in significant numbers (Chua and Zulkefli 2016; Hamzah et al. 2013). *A. fuciphagus* nests contained a relatively higher composition of salivary secretion and were preferred to be harvested for commercial purposes (Koon and Cranbrook 2002). Figure 1 represents the EBN of Swiftlet species.

Edible bird nest also known as cubilose, swallow nest, or “Yan Wo” among Chinese gourmards, is a well-known traditional medicine and pricey delicacy. EBN is made up of high-quality glycoproteins that are high in amino acids, carbohydrates, calcium, sodium, and potassium (Utomo & Djalal 2014). For centuries, EBN was used to treat malnutrition, boost the immune system, and enhance the metabolism of the human body. However, the recent discovery of anti-oxidant properties of EBN also makes bird nests a potential additive to cosmetic products (Kim et al. 2012).

Swiftlet habitats range from the Nicobar Islands in the Indian Ocean to sea caves in Thailand, Vietnam, Indonesia, Borneo, and the Palawan Islands in the Philippines.

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