

REVIEW ARTICLE

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Review on *Eurycoma longifolia* Pharmacological and Phytochemical Properties

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ABSTRACT

Eurycoma longifolia or Tongkat Ali is famous for its aphrodisiac property and the traditional uses range from tonic after childbirth to treating malaria. Phytochemical studies revealed the presence of bioactive compounds such as quassinoids, alkaloids, squalene derivatives, tirucallane-type triterpenes and biphenylneolignans. Existing research revealed that plant has potential to treat various diseases and to replace the current treatment. Purpose of this article is to evaluate and summarize the existing literatures concerning phytochemical, biological and toxicological studies of *E. longifolia*. It is expected that critical evaluation will be useful for researchers working on the potential role of *E. longifolia* in treating diseases or for product development.

Key words: *Eurycoma longifolia*, Tongkat Ali, Longjack, aphrodisiac properties, anti cancer, anti malaria

INTRODUCTION

In Malaysia, it is considered as a national treasure while other countries refer it as Malaysian Ginseng. Tongkat Ali Long Jack is the common name while *Eurycoma longifolia* is the Latin name. A well-known folklore herbal medication in Southeast Asia, the water decoction of this plant parts have been used to treat ailment for centuries. The decoction is bitter and it is assumed that the more the bitterness, the better the efficacy. Based on personal experiences and cultural beliefs, the traditional uses have been passed from generation to generations. This plant has been used to increase energy and vitality, as health tonic, relieve fatigue, anti-malaria treatment, tonic for woman after childbirth, diarrhea, dysentery, glandular swelling, bleeding, dropsy, cough, fever, ulcer and high blood pressure (Bhat and Karim, 2010). The aborigines are known to drink the decoction of this plant before entering deeper into mosquito infested jungle. This plant is investigated to contain canthin-6-one and β -carboline alkaloids which are naturally occurring amine compounds formed as metabolic by-products in order to repel insects and herbivores (Chua *et al.*, 2011).

The traditional uses are well documented in literature. Hout *et al.* (2006) conducted an ethnobotanical survey of application of *E. longifolia* as medication among traditional healers in regions of Cambodia. The survey revealed that

E. longifolia has been used for fever, rheumatism, dysentery, diuretic and tonic. Al-Adhroey *et al.* (2010) investigated plants that are traditionally used in the treatment of malaria, among 233 aboriginal as well as rural households and traditional healers in malaria endemic areas in Malaysia. The studies revealed that among the many other medicinal plants used, *E. longifolia* is the only one mentioned most by the studied groups. Adnan and Othman (2012) found that *E. longifolia* is a common plant species that have important value in Malay community and it is used commonly for healing and consumption.

There are a total four species being referred by locals with the name Tongkat Ali, *Eurycoma longifolia*, *Entomophthora apiculata*, *Polyalthia bullata*, *Goniothalamus* sp. Nevertheless only *E. longifolia* has been the most widely used species among them (Athimulam *et al.*, 2006). Additionally, scientific research has been found to be numerous on *E. longifolia* (Hassan *et al.*, 2012). It is known as Tongkat Ali in Malaysia and Singapore, Pasak Bumi in Indonesia, Cay Ba Binh in Vietnam and Tung Saw in Thailand. Tongkat Ali name or Ali's walking stick, may come from the morphology of the plant, where its long, straight, woody roots looks like walking stick. In Malaysia, it is also known as Payung Ali, Penawar Pahit, Setunjang Bumi, Bedara Pahit, Tongkat Baginda, Pokok Syurga, Tongkat Ali Hitam, Pokok Jelas and Jelaih