

Phytochemical and Pharmacological Properties of Rambutan (*Nappecium lappaceum L.*) and its Industrial Usage: A Mini Review

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Abstract. Rambutan, a famous tropical fruit, contains a high concentration of bioactive chemicals. Most of the components from this plant including leaves, pulp and seed have many uses and are thought to have medicinal properties. Bioactive components or phytochemicals (such as polyphenols, flavonoids, vital minerals, and vitamins) are found in most tropical fruits, as well as their bioactivity. Thus, this review study aims to give a general description of the phytochemical contents, medicinal qualities of rambutan trees and prospective industrial applications.

INTRODUCTION

Rambutan, a famous tropical fruit, contains a high concentration of bioactive chemicals. The rambutan is a much-loved exotic tropical fruit whose flavour is greatly enjoyed in the growing regions [1]. Several plants are used in various traditional medical systems, and the rambutan tree is included for promising bioactive chemicals that have remained effective in modern medication therapy. Traditional herbs and fruits have been utilised as an immunity booster for humans in China and other Asian countries for thousands of years [15,20]. Rambutan (*Nepheium lappaceum L.*) is a fruit mostly available in tropical places such as Indonesia, China, India, Australia, Malaysia, Mexico, and Thailand, and belongs to the Sapindaceae family [7]. *Nepheium lappaceum* (rambutan), *Nepheium mutabile* (pulasan), and *Nepheium philippinense* are the three primary species in the genus *Nepheium* (bushan). The tropical non-climacteric fruit-bearing tree *Nepheium lappaceum L.* (family Sapindaceae) has almost 2,000 subspecies. Rambutan is divided into three botanical variants based on leaf characteristics: *Nepheium lappaceum* var. *pallens*, var. *lappaceum*, and var. *xanthiodes* [1]. *Nepheium lappaceum L.* is a kind of family of Sapindaceae, Grayish brown branches 2-4, around 10-12 m tall. The Malay word 'rambut,' which means "hair," is derived from the presence of numerous hairy protuberances [1,15,20].

Rambutan is a tropical fruit that is grown in Malaysia, Indonesia, and Thailand [3]. The tree is native to Malaysia; however, it is also found in other regions of the world. Plants have traditionally been the world's primary source of energy. The leaves are complex and shiny green. Blooms are self-pollinating or bisexual, tiny, yellowish-green to white, without petals, and found in huge bunches. They are also rich in nectar and draw bees. Inflorescences are many branched, flowers are yellowish-green to white, small and occur in large bunches, petalless, with a mild sweet scent, dioecious (male and female flowers on separate trees) or bisexual, six to eight stamens are seen in each bloom. With a single style, the superior ovary has one to two lobes. Twice a year, the tree blooms. The edible fruits are oval to spherical drupes with leathery skin and flexible hairy spines that mature from green to crimson. Aril is white, meaty, delicious, and sweet, and it encircles one huge seed [5].