

Traditional Uses, Phytochemistry and Biological Activities of *Alocasia* Species: A Systematic Review

ABSTRACT

The genus *Alocasia* (Schott) G. Don consists of 113 species distributed across Asia, Southeast Asia, and Australia. *Alocasia* plants grow in tropical and subtropical forests with humid lowlands. Featuring their large green heart-shaped or arrow-shaped ear leaves and occasionally red-orange fruit, they are very popular ornamental plants and are widely used as traditional medicines to treat various diseases such as jaundice, snake bite, boils, and diabetes. This manuscript critically analysed the distribution, traditional uses, and phytochemical contents of 96 species of *Alocasia*. The numerous biological activities of *Alocasia* species were also presented, which include anti-cancer, antidiabetic and antihyperglycaemic, antioxidant, antidiarrhoea, antimicrobial and antifungal, antiparasitic (antiprotozoal and anthelmintic), antinociceptive and anti-inflammatory, brine shrimp lethality, hepatoprotective, anti-hemagglutinin, anti-constipation and diuretic, and radioprotective activities as well as acute toxicity studies. Research articles were acquired by the accessing three scientific databases comprising PubMed, Scopus, and Google Scholar. For this review, specific information was obtained using the general search term “*Alocasia*”, followed by the “plant species names” and “phytochemical” or “bioactivity” or “pharmacological activity”. The accepted authority of the plant species was referred from theplantlist.org. Scientific studies have revealed that the genus is mainly scattered throughout Asia. It has broad traditional benefits, which have been associated with various biological properties such as cytotoxic, antihyperglycaemic, antimicrobial, and anti-inflammatory. *Alocasia* species exhibit diverse biological activities that are very useful for medical treatment. The genus *Alocasia* was reported to be able to produce a strong and high-quality anti-cancer compound, namely alocasgenoside B, although information on this compound is currently limited. Therefore, it is strongly recommended to further explore the relevant use of natural compounds present in the genus *Alocasia*, particularly as an anti-cancer agent. With only a few *Alocasia* species that have been scientifically studied so far, more attention and effort is required to establish the link between traditional uses, active compounds, and pharmacological activities of various species of this genus.