Phenolic activities of fruits and leaves of *Garcinia forbesii* King from Sabah

ABSTRACT

Garcinia forbesii King or locally known as "Assam aroi-aroi" or Brunei cherry is a small tree which is scattered throughout the lowlands of Malaysia. The skin of the aroi-aroi fruit were sliced and dried and being used in cooking to give a sour taste in local cusines. The dried aroi-aroi were also used as medicine to treat women after childbirth, stomach ache and a cough relief, a traditional practice to cure many illnesses and diseases and to maintain general health. In South Kalimantan, it was called red mangosteen but the fruit is rarely eaten. The fruit has white flesh with a sweet flavour and fresh red rind with strong sour taste. The present research showed that the plant is not popular compared to the other Garcinia species. This study includes the phenolic, flavonoid content and DPPH scavenging activity of different plant parts (fruits; whole fruits, unripe rind, unripe flesh, ripe rind, ripe flesh, shoots, mature leaves and twig) extracts of Garcinia forbesii. The correlation between the phenolic and flavonoid content with the antioxidant activity in different parts of Garcinia forbesii were identified. Phenolic and flavonoid content of these extracts were significantly correlated with antioxidant activity. The highest antioxidant capacity and highest phenolic and flavonoid contents were found in twig extracts (87.73 – 91.05 %) scavenging activity using standard ascorbic acid at the concentration of 0.015 to 1.0 mg/ml in methanol), followed by mature leaves and non-polar extracts of the fruits. Lower antioxidant capacity in shoots compared to mature leaves and higher antioxidant capacity in ripe fruits when compared to unripe condition. The high content of phenolic compounds and total flavonoids of some parts of plants sample indicated that these compounds contribute to the antioxidant activity which can be further studied in the identification of bioactive compounds.