

Evaluation of phytochemical composition and novel bioactivities from fresh fruit of *Garcinia quaesita* Pierre

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About the book

The fruit rind of *Garcinia quaesita* Pierre is known as a condiment with therapeutic potential, including antioxidant, antihyperglycemic, and anti-proliferative effects. However, there has been a lack of in-depth investigation into its phytochemical composition and its activities related to anti-inflammatory, and anti-tyrosinase activities. In this study a 1:1 ethanol : water extract of fresh fruit of *Garcinia quaesita* was used. Preliminary phytochemical screening revealed the presence of numerous bioactive compounds, including alkaloids, polyphenols, flavonoids, glycosides, coumarins, anthraquinones, steroids, terpenoids, saponin, and xanthoproteins. The Total Phenolic Content (TPC) of the fruit extract of *G. quaesita* was $3053.25 \pm 30.07 \mu\text{g GAE g}^{-1}$, and Total Flavonoid Content (TFC) was $443.19 \pm 4.76 \mu\text{g CE g}^{-1}$. The extract exhibited moderate antioxidant activity ($\text{IC}_{50} 238.14 \pm 0.68 \mu\text{g mL}^{-1}$) compared to ascorbic acid. In anti-inflammatory assays, compared to *O*-acetyl salicylic acid, the extract showed notably higher inhibitory effects against egg albumin denaturation and heat-induced hemolysis with lower IC_{50} values of $762.49 \pm 1.70 \mu\text{g mL}^{-1}$ and $617.66 \pm 1.75 \mu\text{g mL}^{-1}$ respectively. Correlation analysis highlighted strong positive correlations between TPC and antioxidant ($r=0.801$) and anti-inflammatory ($r=0.725$ and $r=0.605$) activities, highlighting the role of TPC. At 4 mg mL^{-1} , the fruit extract of *Garcinia quaesita* Pierre exhibited lower inhibitory activity of tyrosinase with an IC_{50} value of $3.31 \pm 0.04 \text{ mg mL}^{-1}$, than kojic acid. Additionally, the SPF value at 2 mg mL^{-1} was 15, indicating moderate UV protection. In conclusion, this study suggests the potential use of fresh *G. quaesita* fruit extract for functional foods and cosmetics, owing to its rich phytochemical composition and bioactivities, especially in antioxidative and anti-inflammatory domains.

Citation

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