

Exploring the potential of *Ananas comosus* and application of its bioactive compounds

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Abstract

This study explores the therapeutic potential of aqueous extract of *Ananas comosus* peel. *A. comosus*, commonly known as pineapple, is a widely consumed tropical fruit, with its peel often discarded as waste despite being rich in bioactive compounds. The plant contains various phytochemicals, which account for its therapeutic properties. Qualitative and quantitative analysis confirmed the presence of key bioactive compounds, including phenols, saponins, flavonoids and alkaloids. Extracts of the peel exhibited significant pharmacological properties such as anti-oxidant, anti-inflammatory, anti-diabetic, anti-ulcer, anti-microbial, and anti-urolithiatic activities. The peel extract showed significant anti-oxidant, anti-inflammatory and anti-urolithiatic activity compared to standards. The anti-diabetic and anti-ulcer activities were maximum at the lowest concentration; however, anti-microbial activity was not observed in the extract. These findings suggest that *A. comosus* peel could be a valuable source for bioactive compounds with therapeutic potential.