NCON-PGR_2022_150

Enzymatic Analysis and Characterization of Bromelain from Two Varieties of Pineapple (*Ananas comosus*) Fruit and Stem Extracts

N. Munir *and* ***A.N.M. Ramli****

Faculty of Industrial Science and Technology, Universiti Malaysia Pahang, 26300 Pahang, Malaysia

**Corresponding author*: aizinor@ump.edu.my

Abstract

This study was designed to examine the presence of enzymatic activity of fruit and stem bromelain extracted from two varieties of pineapple (Ananas comosus): Morris and Sarawak. The bromelain crude extract obtained from fruits and stems were tested for their protein content via Bradford's assay, and both crude extract from Morris variety showed the highest value. Further analysis was done to investigate the proteolytic activity of the crude fruit and stem bromelain, resulting in Morris variety having the highest activity for fruit bromelain, while Sarawak variety having the highest activity for stem bromelain. The Gelatin Digestion Unit (GDU) analysis performed revealed both fruit and stem bromelain from Morris variety exhibited the highest activity. Furthermore, the temperature optimization showed that both fruit bromelain of Morris and Sarawak varieties were optimum at 35 ℃, while stem bromelain from both pineapple varieties were optimum at 45 ℃. Meanwhile, pH optimization for Sarawak variety extract of fruit and stem bromelain were found at pH 5.6, while Morris variety were optimum at pH 6.6. These results indicated both varieties of pineapple extracts of fruits and stems were having bromelain enzyme that can be further developed for application at industrial level

Keywords: Pineapple; Enzyme activity; Bromelain; Protease; Fruit; Stem.