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Characterization of New Protease from *Murdannia Bracteata*

N. Yahya, Z. I.M. Arshad*, R. Che Man, S.K. Abdul Mudalip, S.Z. Sulaiman, S.M. Shaarani

Faculty of Chemical & Natural Resources Engineering, Universiti Malaysia Pahang, 26300 Gambang, Pahang, Malaysia.
****Corresponding author: zatul@ump.edu.my***

EXTENDED ABSTRACT

Plant proteases occupy the most relevant position in the biotechnology and pharmaceutical industries due to their proteolytic activity on a wide range of temperature and pH. Plant protease such as papain, bromelain and ficin are the most frequently employed as industrial enzymes, although new proteases with more appealing physicochemical properties for industry are still emerging [1]. The *Murdannia bracteata* (C. B. Clarke) is an annual shrub that commonly found in Malaysia, China and Thailand. This plant has been claimed to exert antioxidant and hepatoprotective effect on rats [2]. However, the presence of protease in *Murdannia bracteata* plant have not been scientifically explored. Therefore, in the present study, screening of 7 different plant species for the optimum specific activity was investigated. The leaf extract from *Murdannia bracteata* showed relatively high specific activity that the protease extract from other plants. Therefore, the protease from the leaves of *Murdannia bracteata* was purified from the plant of *Murdannia bracteata* by ammonium sulfate precipitation at 10 % of saturation level. The purity of the protein was verified by SDS-PAGE analysis. Then, the characteristics of pH, temperature and inhibitors of purified protease from *Murdannia bracteata* extract were investigated. A single band of protease was visualised on SDS-PAGE with the molecular weight of 40 kDa. The protease had an optimum pH of 8.0 and was stable at 50°C with high specific activity. Complete inhibition of protease activity such as PMSF and EDTA indicates that the enzyme belongs to the serine protease class. Thus, protease from *Murdannia bracteata* might be a potential candidate for various applications in the food and biotechnological industries.

Keywords: *Murdannia bracteata*; protease; specific activity; pH; temperature; inhibitors.

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