

PURIFICATION OF SERINE PROTEASE FROM MANGO (*MANGIFERA INDICA* CV. *CHOKANAN*) PEEL USING AN ORGANIC SOLVENT/ SALT AQUEOUS TWO PHASE SYSTEM

TECHNOLOGY DESCRIPTION

The technology is ATPS organic solvent/salt method aims purify serine protease enzyme from mango peel.

TECHNOLOGY FEATURES

The enzyme can be isolated with high level of purification factor and yield with easy scale-up production. This method has a high polarity, low viscosity and easy recovery steps by evaporation. The entire procedure can be carried out to produce enzyme at low material cost which is obtained from mango peel waste. Mango peel waste is a novel, rich and cost-effective source which contains nutritional components such as different types of enzymes. The purification process benefits from low interfacial tension and a mild environment. Serine protease from the mango peel is thermostable and active in alkaline pH. It is an excellent choice in application of food, detergent and biotechnology industries.

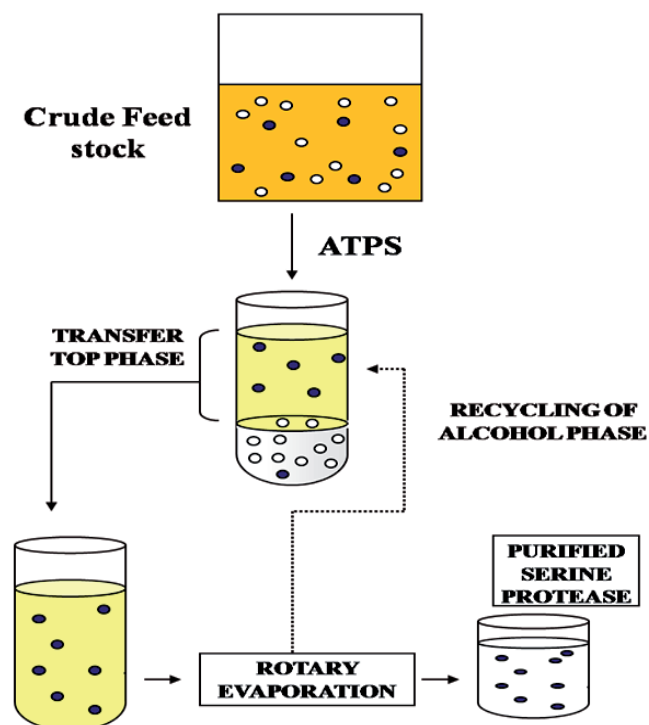
ADVANTAGES

- Significant reduction of total enzyme cost and substantial decrease in volume of imported enzyme
- Conversion of inexpensive, renewable material from agricultural waste into value added products
- Recovery of valuable components from waste can reduce volume of biomass waste.

INDUSTRY OVERVIEW

Prospect: Metal Industry

Mango peel is rich of valuable nutritional components such as different types of enzymes, and it has been reported that about 60% of total worldwide market of enzymes is proteases. Proteases are used in industry, medicine and a basic biological research tool. The current Aqueous two phase system (ATPS) has some disadvantages in the system, such as the high cost of polymers and slow segregation. Various types of industry especially in food, detergent, pharmaceutical, textile, and paper will benefit from this invention. As for the Malaysian market, a vast number is recorded on these types of industry via the SME's website – 3297 companies in food and beverage; 312 from pharmaceutical; and 532 from chemical petrochemical product which includes detergent while the Malaysian's Paper Merchant's Association quoted of about 55 companies operating in the Packaging and Paper industry. Countries who are among the top ten of mango producers such as India, China, Thailand, Indonesia and Pakistan might also find this invention useful to them.



Dr. Mehrnosh Amid
 Faculty of Food Science and Technology
 mehrnosh@upm.edu.my