

HEAT-TREATMENT AQUEOUS TWO PHASE SYSTEM FOR PURIFICATION OF SERINE PROTEASE FROM KESINAI (*STREBLUS ASPER*) LEAVES

TECHNOLOGY DESCRIPTION

Heat treatment aqueous two phase system employs heat treatment protocol in serine protease purification which resulted in higher purity and recovery yield as compared to the current non-heat treatment protocol.

TECHNOLOGY FEATURES

This technology purifies serine protease directly from crude feedstock while increasing the purity and recovery yield. Thermal treatment of kesinai leaves at 55°C for 15 minutes with the composition of 16% PEG6000-15% MgSO₄ system and the addition of 4% sodium chloride at pH 7.0 recovers serine protease from kesinai leaves with high purification factor (14.4) and yield (96.7%).

ADVANTAGES

- Simple operation – rapid processing and easy of scaling up
- Cost effective – low viscosity and recyclable phase component
- High purification and yield
- Low toxicity to the environment

INDUSTRY OVERVIEW

Prospects: Dairy Food, detergent, pharmaceutical and biotechnological application

The global industrial enzyme market valued at USD4.41 million in 2013 and is expected to increase to USD7.65 million by 2020, growing at a CAGR of 8.3% from 2014 to 2020. In terms of application, the food and beverages dominated application market for enzyme and accounted for 37.5% of total market revenue in 2013 while detergents were the second largest application segment, with market revenue exceeding USD900 million. However, animal feed is expected to be the fastest growing application market for enzymes at an estimated CAGR of 8.7% from 2014 to 2020. Although the global market for enzymes is dominated by North America at 37.4% of total market revenue in 2013, Asia Pacific is expected to be the fastest growing regional market, at an estimated CAGR of 9.4% for the period of 2014-2020. About 70% of the enzyme market is dominated by a few large players, such as Novozyme and Genecor which are also the main contributors and major enzyme players for detergents.



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