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Inhibition of Enzymatic Browning During the Extraction of a Milk Coagulating Protease from *Streblus asper* (Kesinai)

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Abstract

Streblus asper (Kesinai) leaf contains a protease, which can be used to coagulate milk. This extract however, has an undesirable, very dark brown colour due to enzymatic browning. Several browning inhibitors were used in this study with the objective of preventing browning during extraction of the protease. Ascorbic acid at 10mM concentration reduced browning and polyphenol oxidase (PPO) activity by 41 per cent and 10 per cent. The protease specific activity and milk coagulation activity were 88 per cent and 143 per cent. Citric acid at 10mM concentration reduced browning and PPO activity by 64 per cent and 72 per cent. However, it has reduced protease and milk coagulation activity by 76 per cent and 65 per cent, respectively. L-cysteine inhibited browning and the minimum threshold was found to be 5 mM. It improved protease activity and milk coagulation activity, but did not inhibit PPO activity. Sodium metabisulphite was found to be a more effective inhibitor of *Streblus asper* browning and the minimum threshold for inhibition was 2 mM. Metabisulphite treated extract has higher protease activity, milk coagulation activity and lower PPO activity compared to extracts prepared using other chemicals and to the control.

quinones or by exclusion of one or all of the substrates