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Comparative structural analysis of fruit and stem bromelain from Ananas comosus (Article)

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Abstract

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Cysteine proteases in pineapple (Ananas comosus) plants are phytotherapeutical agents that demonstrate anti-edematous, anti-inflammatory, anti-thrombotic and fibrinolytic activities. Bromelain has been identified as an active component and as a major protease of A. comosus. Bromelain has gained wide acceptance and compliance as a phytotherapeutical drug. The proteolytic fraction of pineapple stem is termed stem bromelain, while the one presents in the fruit is known as fruit bromelain. The amino acid sequence and domain analysis of the fruit and stem bromelains demonstrated several differences and similarities of these cysteine protease family members. In addition, analysis of the modelled fruit (BAA21848) and stem (CAA08861) bromelains revealed the presence of unique properties of the predicted structures. Sequence analysis and structural prediction of stem and fruit bromelains of A. comosus along with the comparison of both structures provides a new insight on their distinct properties for industrial application.

Author keywords

3D structure prediction | Amino acid analysis | Fruit bromelain | Stem bromelain

Indexed keywords

Engineering controlled terms: Amino acids | Fruits

Compendex keywords: 3D Structure | Active components | Amino acid analysis | Amino acid sequence | Anti-inflammatories | Fibrinolytic activity | Fruit bromelain | Sequence analysis

Engineering main heading: Bromelain

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