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Carbohydrate Polymer Technologies and Applications 10 (2025) 100755

Contents lists available at ScienceDirect

Carbohydrate Polymer Technologies and Applications

journal homepage: www.sciencedirect.com/journal/carbohydrate-polymer-technologies-and-applications

Horse chestnut starch: Structure, properties, modification and its applications-A review

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ARTICLE INFO

Keywords:
Nonconventional starch
Properties
Granular structure
Modification
Applications

ABSTRACT

Horse chestnut (*Aesculus indica*) is an underutilized nut, accounting for approximately 60 % of the total starch present in its seed. Horse chestnut has potentials as a source of commercially available starches since it is widely distributed in Asia, Japan, Europe, America and China with minimal input costs. As the major component of horse chestnut seeds, starch is considered as a cheap and sustainable carbohydrate source in comparison to other conventional sources. Herein, this review aims to highlight the composition, isolation methods, structural characteristics, functional properties and modifications as well as potential applications of horse chestnut starch. Horse chestnut starch has high amylose content (33.1 %) renders it a promising source of resistant and low digestible starch. The structural characteristics of horse chestnut starch differs from other common starches, influencing its swelling power, solubility, transparency, freeze-thaw stability, pasting, gelatinization and retrogradation. However, Horse chestnut starch exhibits distinctive structural profile with high short chains, which correlates with its pasting viscosity. To increase its versatility and applicability, horse chestnut starch has been

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