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V-amylose structural characteristics, methods of preparation, significance, and potential applications

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Abstract

The amylose component of starch can form complexes known as V-amylose with amphiphilic or hydrophobic ligands. The V-amylose complexes are single, left-handed helices that are arranged as crystalline and amorphous lamellae, which may form distinct nano- or micron-scale structures. V-amylose has potential as a biomaterial for nanoencapsulation of sensitive bioactive and flavor ingredients, modification of rheological behavior of starch-containing products, reduction of starch retrogradation, and postprandial hyperglycaemia in diabetics. Various aspects of V-amylose structure, methods of preparation, factors that affect its formation, and the significance and potential applications of the V-amylose complexes are reviewed.