

摘 要

本研究利用高效能分子篩層析儀分析兩種木耳類萃取多醣(毛耳多醣與銀耳多醣)的分子量,再以毛細管黏度計及動態流變儀探討不同溫度、pH 值、溶液中添加雙糖(蔗糖、麥芽糖及海藻糖)與離子強度(氯化鈉、氯化鉀及氯化鎂)對木耳類萃取多醣溶液在極稀釋溶液(dilute-solution)及半稀釋溶液(semi-dilute solution)狀態流變性質之影響。在極稀釋水溶液中,銀耳多醣溶液之固有黏度遠比毛耳多醣高出許多,而以毛耳多醣隨著添加雙糖濃度的上升與離子強度的增加而使固有黏度下降的趨勢較為明顯。動態流變儀的結果顯示兩種木耳類萃取多醣溶液皆有剪稀現象、無法凝膠,而且 pH 值對木耳類萃取多醣溶液的影響不明顯。隨著溫度的升高與離子強度的增強,皆有使木耳類萃取多醣溶液之 G' 值皆呈下降之趨勢;添加雙糖皆明顯的增加毛耳多醣溶液之 G' 值,而海藻糖對銀耳多醣溶液 G' 值影響的幅度最大。對兩種木耳類萃取多醣來說皆以高濃度之海藻糖和氯化鎂提升形變活化能的幅度最高。

最後採用三種不同的米澱粉(TCN1、TNu67 及 TSCW1)和兩種木耳類萃取多醣為樣品,以快速黏度分析儀探討其對澱粉-木耳類萃取多醣系統的影響,發現木耳類萃取多醣的添加有提升在加熱過程中整體黏度的效果,但是影響幅度小於刺槐豆膠。

Abstract

Two kinds of wood ear extracted polysaccharides called AP and TF (extracted by *Auricularia polytricha* and *Tremella fuciformis*) were detected those molecular weight by High Performance size exclusion chromatography (HPSEC) , before the effects of different temperature , pH , sugar (sucrose , trehalose and maltose) and ionic strength (NaCl , KCl and MgCl₂) on the rheological properties of AP and TF solutions at dilute and semi-dilute states were investigated , using a capillary viscometer and dynamic rheometer with flow or small-amplitude oscillation mode . Basically , the intrinsic viscosity of the TF examined in aqueous solution was higher than that of the AP . The tendency of decreasing intrinsic viscosity by adding sugar and raising of ionic strength on AP solution was more notable . Dynamic rheometric examination showed that shear thinning occur on both AP and TF solution , and those solution did not undergo gelation , also the different pH did not result in difference . The tendency of decreasing storage modulus (G') by raising temperature and increasing ionic strength on both AP and TF solution was detected , the effect of raising storage modulus on AP solution by adding sugar was significant , and trehalose can cause the most variation of storage modulus on TF solution . High concentration of trehalose and MgCl₂ can cause the most variation of activation energies of deformation on both AT and TF solution . Rice starch from three cultivars (TCN1 , TNu67 and TCSW1) and two kinds of wood ear extracted polysaccharides were used as sample , investigate the influence of starch and polysaccharide intentioned on the starch-wood ear extracted polysaccharide mixtures by rapid visco analyser . The results show that the addition of both AP and TF can increase the viscosity of starch paste during heating process . Moreover , the effect extent was less than adding locust bean gum (LBG) .