

鹿肉盐溶蛋白热诱导凝胶特性影响因素试验 Properties of Venison Protein Gelatin and Mathematical Model

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摘要: 通过单因素试验研究各因素对鹿肉盐溶蛋白热诱导凝胶特性参数的影响, 得出: 持水性和断裂强度随食盐、六偏磷酸钠、焦磷酸钠和多聚磷酸钠用量的增加先增大后减小, 粘度随其用量增加逐渐增大; 随着pH值增大, 持水性先显著后缓慢增大, 断裂强度和粘度先增大后减小; 随着温度升高, 持水性先减小后增大, 断裂强度先增大后减小, 粘度先显著后缓慢增大。借助均匀组合设计试验和二次多项式回归方程探讨各因子与凝胶特性参数间关系, 得到各因子对持水性的影响从大到小依次为pH值、多聚磷酸钠、六偏磷酸钠、离子强度, 焦磷酸钠与温度的影响不显著, 因子间作用显著; 各因子对断裂强度的影响从大到小依次为六偏磷酸钠、离子强度、温度、pH值、多聚磷酸钠、焦磷酸钠, 因子间作用显著; 各因子对粘度的影响从大到小依次为多聚磷酸钠、离子强度、六偏磷酸钠、温度、pH值、焦磷酸钠, 因子间作用显著。 The effect of heat inducible gelatin of salt soluble protein of venison on water retention property, breakdown strength and viscosity was investigated. The conclusions was as follows: as the amount of NaCl, sodium hexametaphosphate, sodium pyrophosphate and sodium polyphosphate increase, water retention property and breakdown strength increase first and then decrease, viscosity increases gradually; as pH value increases, water retention property first increases strikingly and smoothly then, breakdown strength and viscosity first increase and then decrease; as the temperature increases, water retention property first decreases and increases then, breakdown strength first increases and decreases then, and viscosity first increases and decreases then. The relation between affecting factors and water retention property, breakdown strength and viscosity was discussed through homogeneous experimental design and quadratic regression equations. The effect of factors on water retention property is as follows: the effect of sodium pyrophosphate and temperature is not notable while interaction effect among factors is notable. The influencing factors on breaking strength and viscosity are as follows: odium hexametaphosphate, ionic strength, temperature, pH value, sodium polyphosphate and sodium pyrophosphate, and interaction effect among factors is notable.

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