

Tannins in Fruit Juices and their Removal

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ABSTRACT

Tannins are groups of phenolic compounds that cause astringency and turbidity in fruit juices. Many factors had an influence on the concentration of tannins in fruit juices, including cultivar, parts and maturity stages, as well as pH and viscosity of juices. Many methods were investigated for tannins removal from fruit juices. Physical methods included heat treatment and membrane filtration. Chemical methods were based on clarifying agents included polysaccharides (starch and chitosan), proteins (gelatin and casein) and synthetic polymers (polyvinyl polypyrrolidone). The enzymatic method was based on the application of enzyme tannase to hydrolyze tannins into soluble compounds. Tannins removal efficiency of each method depended on fruit juice, type and parameters of the method. Downstream process should be considered especially for application of clarifying agents.

Keywords: Fruit juice, Tannin, Gelatin, Polysaccharides, Tannase

INTRODUCTION

Tannins are phenolic compounds with molecular weight from 500 to more than 3,000 Da. They are plant secondary metabolites which have a role in plant defense mechanism against microbial infection, insect and animal herbivores. Tannins are classified into 2 groups: hydrolysable and condensed tannins. The