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Effect of enzymatic treatment on the viscosity of raw juice and anthocyanins content in the microfiltrated blackberry juice

Manuela Cristina Pessanha de Araujo[a,*], Ana Cristina Miranda Senna Gouvêa[b], Daniel Simões Couto[b], Lourdes Maria Correa Cabral[a], Ronoel Luiz de Oliveira Godoy[a], Suely Pereira Freitas[c,*]

[a]*Embrapa Food Technology, Avenida das Américas, 29501, Rio de Janeiro, RJ, Brazil*
[b]*Food Science and Technology Department, Federal University of Rio de Janeiro, Seropédica, Rio de Janeiro, RJ, Brazil*
[c]*Chemical Engineering Department, Federal University of Rio de Janeiro, Avenida Horácio Macedo, 2030, RJ, Bloco E, Sala E-201 Brazil*
Tel. (+55) 21 2562-7038; email: manuela@ctaa.embrapa.br, freitasp@eq.ufrj.br

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ABSTRACT

Fruit juices consumption has increased in recent years due to the perception of juices as a natural source of compounds that provide health benefits, such as anthocyanins, an important natural antioxidant. For the industrial production of blackberry, the juice microfiltration process is commonly used, but due to the high viscosity of this fruit, an enzymatic pretreatment is necessary. The objectives of this study were to select the operating variables (temperature and enzyme concentration) for the juice pretreatment and to evaluate its effect on the anthocyanins content in clarified blackberry juice. An experimental design was carried out to evaluate the rheological behavior of the juice as a function of temperature and enzyme concentration. The experimental data was analyzed by Ostwald-de-Waele model. The data of apparent viscosity as a temperature function was fitted by Arrhenius equation. The conditions of 35°C and 4 ml of enzyme Rapidase/kg of blackberry juice® TF from DSM Food Specialities were selected for the enzymatic liquefaction of cell-wall polysaccharides prior to microfiltration. Under this conditions it was possible to observe at the end of the process that this step leads to a considerable increase and maintenance of the permeate flux and an increase in the juice anthocyanin content.

Keywords: Cyanidin-3-*O*-glucoside; Cyaniding-3-*O*-rutenoside; Microfiltration; Rheological behavior

*Corresponding authors.

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