Studies on Processing and Storage of Tender Coconut Water

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ABSTRACT

Tender coconut water (*Cocos nucifera* L.) is a delicate and refreshing natural beverage whose original properties have drawn to highlight as a natural functional drink. Thermal treatments combined with chemical additives are used by the industry but other technologies such as micro and ultrafiltration are yet to be used on an industrial scale. MF and UF offer excellent potential in food industry for clarification and pasteurization of liquid foods to replace conventional processing techniques. A continuous cross flow flat sheet membrane module was used to process by microfiltration (MF) and ultrafiltration (UF) technology. In the first treatment, the tender coconut water (TCW) was passed through MF of 0.2 µm pore size at a pressure of 5.06 kg/cm^2 to remove microbes and suspended particles. In the second treatment, TCW was passed through UF of molecular weight cut off (MWCO) 40 kDa at pressures about 5.06 kg/cm^2 to remove enzymes such as polyphenoloxidase (PPO) and peroxidase (POD). In the third treatment, TCW was bottled and pasteurized at 85^{o}C for 10 min in a water bath. In the fourth treatment, TCW was filtered through a MF membrane and chemical preservative nisin was added to coconut water in two concentrations of 5000 IU and 2500 IU. The TCW filtered through muslin cloth was bottled and refrigerated as control sample. All the samples using different treatments were bottled using crown corking machine and refrigerated at 4 °C to assess the quality during storage. The samples were taken out for every four days interval to assess physico-chemical, microbiological and sensory characteristics upto 20 days of storage. Finally among all the treatments, pasteurized, microfiltered and ultrafiltered treatments gave quality bottled TCW.

Key words: *Membrane processing, Microfiltration, Ultrafiltration.*