

Title Permeability of carboxymethylcellulose edible films with murta extracts: effects of added rutin concentration

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Abstract

Leaf extracts of the Chilean native plant murta (*Ugni molinae* Turcz.) show through HPLC-DAD analysis a peak that could correspond to rutin (quercetin-3-O-rutinoside). The peak area varies in different murta ecotypes. Rutin is known as antioxidant; however, in the present work the interest is focused on its effect on permeability properties of films, when prepared at concentrations approximately corresponding to the amount found for the murta ecotypes ($16, 22, 55 \mu\text{g g}_{\text{DM}}^{-1}$). These rutin concentrations were then incorporated in the films (CMC-rutin). Films were prepared with carboxymethylcellulose (CMC), sunflower oil, glycerol as plasticizer and: a) water or methanol-water for control treatments (CMC-H₂O or CMC-MW); b) the three different rutin concentrations (CMC-rutin) and c) murta aqueous extract of each one of the three different ecotypes (CMC-extract). Results for O₂ permeability showed that only the highest rutin concentration and two of the extracts acted as partial barrier. Permeability to CO₂ of the three rutin films was significantly higher than of films made with the extracts, showing the three murta extracts barrier properties. The H₂O permeability analysis did not show significant differences among the samples. Therefore, it seems that rutin has some permeability effects, but murta extracts have the major influence on the permeability properties on the CMC edible films, which could be due to the other components of the murta extracts and their possible interactions.