Clinical effect of phenolic extract and essential oil of *Ceratonia siliqua L (Caroub)* on digestive flora of hospitalized malnourished children's.

Abstract

Carob (*Ceratonia siliqua L*) is frequently used by the agro-food and pharmaceutical industries for its richness in oligosaccharides, dietary fiber and polyphenols. These substances make carob a potential candidate for prebiotic status.

The aim of this work is: firstly, to demonstrate the antimicrobial activity of polyphenol and essential oil of carob at different concentrations against eight strains belonging to the digestive flora of 20 hospitalized and malnourished children, and secondly, to evaluate the effect of seed extract of *Ceratonia siliqua L* on the growth of probiotics and the tested strains of the digestive flora of this children.

The results revealed significant antimicrobial activity with an inhibition zone ranging from 5 to 16.5 mm and a MIC of 3.33% and 8.33% for the phenolic extract; and 5 to 19.6 mm and a MIC of 0.33% for the essential oil. Furthermore, the confrontation test results show that the two strains (*Lactobacillus fermentum* and *Lactobacillus plantarum*) present an antimicrobial activity against the tested strains. In addition, the inhibitory capacity of *L.plantarum* and *L.fermentum* is improved in the presence of 1% (w / v) of the carob seed extract.

Therefore, this study makes the carob-probiotic association the best candidate for the treatment of diarrhea in malnourished children.

Key words: Carob, Probiotics, Prebiotics, Diarrhea, Malnutrition