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***Manal Khider, K. A. Seliem, Warda M. A. Ebid. Development of Functional Synbiotic Flavored Fermented Skim Milk Drinks Supplemented with Doum (*Hyphaene thebaica* L.) and Carob (*Ceratonia siliqua*) Fruits Powder for Nutritional, Antimicrobial and high Antioxidant Activities, Food and Nutrition Sciences, 2022, 13, (10). <https://doi.org/10.4236/fns.2021.128062>**

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Abstract

The present study was carried out to make new healthy synbiotic flavored fermented skim milk drinks (SFFSD) supplemented with either Doum (*Hyphaene thebaica* L.) or Carob (*Ceratonia siliqua*) fruits powder for nutritional, antioxidant and antimicrobial activities. The HPLC analysis showed higher phenolic and flavonoid content in Doum extract than that of Carob. The antimicrobial activity of the methanolic extracts of both Doum and Carob against foodborne pathogens showed that the most sensitive indicators were, *Bacillus cereus*, *C. albicans* and *S. aureus*, followed by *T. mentagrophyte* and *E. coli* wherein, the diameter of clear zones was, 29, 27, 24, 23 and 13 mm, respectively. While, no effect was noticed against *Aspergillus flavus*. On the other hand, the methanolic extract of Carob fruit exhibited only a weak antibacterial effect against *B. cereus* (20 mm). Six treatments of SFFSD were made using both Doum or Carob fruits powder as prebiotic and *Lactobacillus paracasei* as probiotic bacteria. The added levels from Doum were 2, 4 and 6%, while, that added from Carob were 5, 10 and 15%. Adding Doum and Carob powder increased the containing of minerals; Ca, K, Mg and iron compared with control. Both viscosity and viability of *L. paracasei* for the SFFSD, were increased with increasing the added levels from either Doum or Carob, comparing with control. Samples of SFFSD containing Carob powder, show superior sensory for all parameters and total score points during storage period, especially at level of 10%. It seems evident that samples supplemented with Doum powder was also acceptable.

Keywords: Antimicrobial, Carob fruits, Doum fruits, Phenolic compounds, Prebiotic and Probiotic