

## **Effect of storage conditions on quality of prebiotic dark chocolate.**

### **ABSTRACT**

**Introduction:** A prebiotic such as inulin is a well-known functional plant food ingredient. It is capable of stimulating growth of beneficial bifidobacteria in the intestine thus protecting against intestinal infections, preventing constipation, increasing mineral absorption, reducing the incidence of colon cancer, and producing B vitamins. Inulin added to food therefore has to be stable during food processing especially against heat treatment, low pH and Maillard reaction. **Methods:** Newly developed dark chocolate, DC-1, containing inulin (replacing sugar component) as an added value, was stored at 18°C, 60% relative humidity and 25°C, 80% relative humidity (RH) to determine shelf life stability compared to control dark chocolate, DC-0 (with high content of sugar). Sensory evaluation (quantitative descriptive analysis), water activity (aw), microbiological content and presence of inulin after storage of the prebiotic chocolate under both conditions were evaluated to determine shelf life. **Results:** The DC-1 chocolate had at least 12 months of shelf life at 18°C, 60% RH with better acceptance than DC-0; moreover, it did not experience microbiological and inulin content changes. At 25°C, 80% RH, the growth of *Aspergillus* sp. was observed on the surface of both DC-0 and DC-1 with aw >0.50 after a 2-month storage. **Conclusion:** Shelf life stability of DC-1 is almost similar to DC-0.

**Keyword:** Inulin; Dark chocolate; Shelf life; Water activity and sensory evaluation