PRODUCTION AND CHARACTERIZATION OF PLUM JAMS WITH DIFFERENT SWEETENERS

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Abstract

Jam production is one of the oldest food conserving methods, where the properties of the raw material are transferred to the finished product. The most frequently used sweetener in jam production is sucrose, however, other sweeteners may also be used.

In order to determine and compare the characteristics of jams produced by using different sweeteners, different types of plum jams were produced and their chemical properties were determined. Jams were produced by boiling down previously prepared fruits, in open stainless steel vats on direct flame, temperature of ≈ 100 ^{0}C, for a period of 15 minutes. The sweeteners used include: sucrose (reduced amount), fructose, sorbitol, and agave syrup. The research was repeated three times, in a period of three years. Analysis was conducted on the fresh plum fruits of the Stanley variety and on the obtained jams of the following chemical parameters: total dry matter (by oven drying, 105 ^{0}C), soluble solids (with the refractometer), sugars (HPLC method), total acids (titration with a 0,1 M solution of NaOH), pH (pH meter), pectin's (Carre and Haynes method), vitamin C (iodometric titrimetric method), anthocyanins (spectrophotometric), proteins (Kjeldahl method), fats (Soxhlet method) and ash (gravimetric determination). Microbiological tests of the obtained jams were also conducted. The samples were tested for *Salmonella* spp., *Listeria monocytogenes*, *Enterobacteriaceae*, *Clostridium perfrigens*, yeasts and moulds using tested ISO microbial determination methods.

The resulting values for the average content of total dry matter in the jams (43.29 - 44.36%) are correlated with the average values obtained for the soluble solids (42.04 - 42.89%). Lower values were obtained for the content of vitamin C (11.35 - 11.73 mg/100 g), as well as for the content of anthocyanins (5.56 - 28.19 mg CGE / 100 g FW) in jams compared with the established values in the fresh fruits (13.93 mg/100 g and 34.81 mg CGE/100 g FW, respectively).

From the results it can be concluded that the obtained jams possess the necessary quality in compliance with the standards. All jams are according the regulations for microbiological food safety.

***Key words**: Plum, Sweeteners, Jam, Characteristics.*