RESEARCHES REGARDING THE OIL PROCESSING FROM TRANSYLVANIAN PUMPKIN SEEDS IN PRESSES OF SMALL CAPACITIES

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SUMMARY

The pumpkin seed oil presents interests for human alimentation due to its taste and composition. The use of the pumpkin seed oil, rich in polyunsaturated fatty acids, vitamins and microelements, is correlated with positive effects in the prophylaxis of the prostate cancer, in the treatment of vesica and urinary passages diseases, cardiovascular diseases etc. The use of the oil and seeds in preventing and treating of digestive parasitosis is known since ancient time in the rural area.

A worldwide known culinary specialty, very noble, is the pumpkin seed oil of Styria (trade mark registered), Austria, obtained by pressing with hydraulic presses of the roasted pumpkins seeds of the variety Cucurbita pepo var. styriaca, also identified as var. oleifera. It is also produced in eastern parts of Slovenia and Hungary. New producers are located in China and India. Processed in Romania at the beginning of the 20th century, actually there are no processing units, even pumpkins varieties are cultivated in rural areas.

The paper presents our researches regarding the processing of pumpkin seed oil by cold pressing with a screw press of low capacity (ca. 5 kg seed per hour) with changeable nozzle in diameter and fixed rotations speed. There were tested, in different variants, the pressing of pumpkin seed with and without hulls, as well as different mixtures of the both assortments. The raw material, conditioned by drying and eventually roasted, was analyzed organoleptic. It was determined the raw chemical composition (after the Weende method). The obtained press cake was examined bacteriologic (TNG/g) and mycologic (CFU/g). For the processed oil there were determined the acid value and the fatty acid profile (GC Method).

The results of the organoleptic exam showed a wide qualitative variability as well as structurally variability of the pumpkin seeds. The pressing with screw press of pumpkin seeds with and without hulls was possible only in mixture of the both and with nozzle’ diameter of 5mm. The mixture of ca. 33,33% seed with hulls was optimally for the pressing process. The process efficiency was of 38.67% and the press productivity was of 1.69 pumpkin seed kg/h. The acid value of the oil presented values from 2.3 to 5 (mgKOH/g sample). The pumpkin seed oil obtained by cold pressing contains important essential fatty acid. The saturated fatty acid content is relatively high compared to other vegetable oils. The mycologic and bacteriologic exams presented reduced germs charge, confirming good conditioning and storage of the seeds.

Further investigations in order to establish the appliance in the praxis are requested.