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BOOK OF ABSTRACTS

Effect of Seed Moisture on Pressing Efficiency and Quality of Passion Fruit Seed Oil

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Continuous pressing is a widely applied process for the extraction of oil from oilseeds and nuts. The efficiency of the process depends on the pre-treatment conditions, oil content and moisture of raw material as well as the equipment employed, rotation speed, feed rate and processing temperature, which is not possible to control in small scale oil extraction. Oil extraction by pressing of passion fruit seeds is suitable since its oil content varies from 18 to 35%. In this work, the effect of the seed moisture (7 to 12%) was evaluated in the oil quality and extraction efficiency using an expeller pressing. The seeds were washed with clean water, dried and expeller pressed in 100 kg/hr equipment. The oil composition and quality analysis were carried out according to AOCS. The oxidative stability index (OSI) was obtained by Rancimat at 110°C and air flow of 10 L/hr. The lowest oil extraction efficiency (77%) and highest meal residual oil (8.8%) were obtained from seeds with 11.7% of moisture. There was no significant difference for the fatty acid composition and the major fatty acids were: linoleic (67.7%), oleic (16.7%), palmitic (11.2%), stearic (2.9%) and linolenic (0.43%). There were significant differences for oxidative stability, acidity, oil moisture and conjugated dienes ($p < 0.05$). Despite the low initial level of oxidation (peroxide value), OSI was low due to the high content of linoleic acid. The highest OSI (7.3 hr) and lowest free fatty acid content (0.63%) were obtained for the oil from the lowest seed moisture. The highest oil moisture was obtained for the highest seed moisture. The outlet oil temperature varied among processes and the lowest range (24-38°C) was observed in the pressing with the higher seed moisture. Oil extraction by pressing is a feasible process for passion fruit seed but the seed moisture is a critical parameter for the quality of the oil and efficiency of the process.