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MECHANICAL SCARIFICATION OF QUINOA SEEDS (*CHENOPODIUM QUINOA* WILLD.) AND OBTAINING OIL FROM THE SEED COAT BY SUPERCRITICAL CO_2 EXTRACTION

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ABSTRACT

The paper presents development of a high-performance process for extracting oil from quinoa seeds (*Chenopodium quinoa* Willd.) by supercritical CO_2 extraction. The pre-treatment of seeds involving mechanical scarification was applied. The abrasive material gradation and time of abrasion were optimized. Optimum scarification conditions were obtained using the abrasive gradation P40 at scarification time of 50-100 min. Under these conditions, a seed coat was obtained in an amount of 10% of the seed weight and it contained 20 g oil/100 g seed. The oil was separated from the seed coats by supercritical fluid extraction. Approximately 61% of oil recovery was obtained under extraction conditions: pressure 25 MPa, temperature 40° C and extraction time 120 min. From seeds containing 5.6 g oil/100 g seed, after scarification and extraction with supercritical carbon dioxide, approx. 1.2 g oil/100 g seed was obtained from the seed coat.