

ASSESSMENT OF A NOVEL METHOD FOR DRY PROCESSING OF CANIHUA (*Chenopodium pallidicaule* Aellen) GRAIN, BASED ON THE APPLICATION OF A SPOUTED BED**Carmen Carla Quiroga Ledezma, Adrián Jaime Ortiz Mérida y Carlos Ramiro Escalera Vásquez****ABSTRACT**

In this work, the application of a spouted bed in the process of removal of the perigonium and episperm in the grain of canihua (*Chenopodium pallidicaule* Aellen) was assessed; variety Illimani and ecotype lasta rosada from the province of Pacajes of the department of La Paz were used. For the assessment, two glass cylindrical-conical reactors with an inner diameter (D_c) of 7,44 and 14,34 cm were used, with air inlet hole diameters (d_i) from 1 to 5 mm, which were connected to a compressor of 400 L/min of capacity and equipped with a flowmeter of 500 $L_{\text{standard}}/\text{min}$. Canihua samples were processed in accordance with an experimental design multifactorial of 32 trials. The effects of the following factors were evaluated: variety/ecotype (Illimani and lasta rosada), D_c (7,44 and 14,34 cm), d_i (1 and 3 mm) and height of bed (H_L) (7,5 and 12,5 cm), on the percentage of removal of the perigonium and episperm, the specific consumption of energy and the morphologic and nutritional quality of the grain of canihua. The results of the multifactorial analysis of variance reveal that all the studied factors are preponderant in the removal of the perigonium and episperm of the grain of canihua, especially the factor d_i , and in the specific energy consumption, mainly the factors D_c and H_L . The highest efficacies of removal of the coats/layers that the grain of canihua covers correspond to the conditions of operation of the spouted bed with minors d_i and D_c and majors H_L , although these conditions demand precisely the highest specific energy consumptions for unit of mass of treated canihua. The highest percentages of removal of mass from the surface of the grain of canihua happen in the first five minutes of the process, the Illimani being the variety that shows the major percentages of removal. In the best operation conditions, 20 – 25 minutes of processing a grain free of perigonium and episperm is achieved, called commonly “pearly grain”, without apparent damage in the morphology of the grain and with a quality similar to a scarified and washed sample that is commercialized on the national and international market, and with the same initial protein and lipid contents. The removed material that is collected is a by-product with high mineral content and dietetic fiber, which might have industrial applications, although it is necessary to bear in mind the existence of saponins in this by-product. As a general conclusion, it is stated that the application of a LFTS to scale laboratory is suitable for the removal of the perigonium and episperm of the grain of varieties and ecotypes of canihua and constitutes an alternative to the traditional and conventional processes that are used at present.

Keywords: Kañiwa, Canihua, *Chenopodium pallidicaule* Aellen, Spouted Bed, Andean Grain, Andean Seeds, Pseudocereal.

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