Title Effect of pearling on dry processing of oats

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Abstract

An innovative oat dry processing, integrating pearling, dry milling and sifting, has been developed. The benefits of applying pearling included the production of bran-rich fractions enriched in specific bran layers and their corresponding chemical constituents, removal of trichomes and harmful surface-borne compounds such as aluminium, and microbial decontamination of pearled oat groats. The surface-borne trichomes of an Expression oat cultivar contained at least 126 ppm aluminium and were inhabited by at least three strains of bacteria up to a population of 380 000 colony forming units per gram of trichomes. A pearling process of 5 s depilated all trichomes, resulting in the complete removal of aluminium and bacteria from pearled oat groats. Chemical analysis of the bran-rich fractions (referred to as pearlings) revealed irregular distributions of minerals and protein, while moisture and starch contents increased with the amount of pearlings removed. Phosphorus analysis in the pearlings indicated that a pearling time interval from 20 to 50 s generated a fraction enriched in aleurone material to a level of 24%.