

148. INVESTIGATION OF THE PRODUCTION OF WET AGGLOMERATES OF DURUM WHEAT SEMOLINA USING A FLUIDIZED BED GRANULATOR

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Mastering the industrial processes in which wheat powders are used to produce couscous is still partly based on practical industrial experience and empirical knowledge. Wet agglomeration, rolling, cooking, drying and screening are the main unit operations which are sequentially involved in the couscous grain production. Granulation is the main step that determines the production yield and the final size and shape of the couscous grain. Control of granule size distribution after the wet granulation stage is a very important quality constraint. The objective of this work is to explore whether the novel technique of fluidised bed granulation can produce agglomerates of durum wheat semolina and to investigate if this method could prove a successful alternative to the conventional method using low shear mixer technology to produce the couscous grains.

The couscous agglomerates were produced in a batch fluidised bed granulator with water as the binding medium (top spray). The size, shape, hydrotextural properties (moisture content and compactness) and strength of the granules were measured. Fluidised bed granulation provided a more controlled size distribution than is achievable with the corresponding low shear granulation approach. The agglomerates have specific hydrotextural properties, with different values of their functional attributes that allow us to think to a new ways of texturing durum wheat semolina agglomerates. The final grains size, shape and moisture content were similar to the values measured for commercially available samples. Nevertheless granule compactness was lower. The strength of the granules increased with an increase in the size and the compactness of the final couscous grain.