

PASTING PROPERTIES OF WHOLE WHEAT FLOUR WITH DIFFERENT PARTICLE SIZE FROM BRAZILIAN CULTIVARS INDICATED TO COOKIES PRODUCTION

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Whole-grain foods are an emerging trend in the food market due to consumers desire for health-promoting foods since wholemeal is known by decrease chronic diseases due to the fiber content, vitamin and phytochemical compounds. However, the presence of grain out layer may compromise bakery performance, especially in cookies, where water absorption and starch properties are extremely important. Particle size is an important parameter for whole wheat flour (WWF) and may affect the quality and taste of final food products. Then, the objective of this study was to evaluate the influence of particle size from Brazilian cultivars indicated to cookie production on WWF paste properties. Wheat from BRS-374, ORS-Vintecinco and TBIO-Consistência cultivars were milled in a laboratory mill (M20, IKA, Germany) to obtain coarse, medium and fine particle size. The WWF paste properties were measured in a Rapid Viscosity Analyzer (RVA-4D, Newport scientific, Australia). The influence of particle size was dependent on the cultivar evaluated. ORS-vintecinco showed similar values on peak viscosity and breakdown in all particle size studied. However, a decrease in final viscosity and setback was noticed as particle size decreased (3528.33—2722.66Cp). BRS-374 and TBIO-Consistência presented similar behavior on pasta profile, with an increase in peak viscosity (3923.66—3488.66Cp; 3627.66—2349.33Cp) and breakdown (1511.00—1260.66Cp; 1412.00—590.33Cp) and reducing in setback (1351.66—1846.00Cp; 1422.33—1793.66Cp) as particle size decrease. The reduction on WWF particle size may require more water to starch gelatinization, since particle size reduction simultaneously reduces fibers size, causing a higher surface area. The reduced particle size creates competition for water among proteins, fibers, and starch. Consequently, the water absorption of WWF increase, which is an undesirable characteristic for cookies production. Further studies should be carried out to evaluate dough properties and water absorption behavior of WWF and the influence of particle size on cookies characteristics.

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