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SOLVENT RETENTION CAPACITY TEST AND ITS RELATIONSHIP WITH WHEATQUALITY EVALUATION PARAMETERS

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Methods of analysis that require a small amount of raw material are very important to understand wheat technological quality, especially during early stages of breeding programs, when small amounts of wheat sample are available , and in advanced breeding stages to direct wheat genotypes according to its end-use quality. The solvent retention capacity test (SRC) demands a small amount of sample and measures the capacity of flour to retain different solutions: 5% lactic acid (LA), associated with gluten quality; 5% sodium carbonate (SC), related to levels of damage starch; 50% sucrose (Suc), linked to pentosans and gliadin characteristics; and water, influenced by all flour constituents. The four SRC values combined pattern establish a flour quality/functionality profile useful for predicting baking performance and specification conformance. The aim of this work was to investigate the relationship between SRC test and other parameters to evaluate wheat technological quality. The study was performed on samples from 27 wheat genotypes (eight cultivars and 19 lines) of 2009 crop season, originated from Embrapa Wheat VCU testing (Value for Cultivation and Use) in four locations : Passo Fundo, Três de Maio , São Borja (1st and 2nd sowing dates), and Canoinhas, Brazil. Wheat/flour samples were characterized at Kraft Foods, as for SRC test (AACC method 56-11), being the acid ratio calculated: LA SRC /(CS SRC + Suc SRC), and analyzed at Embrapa Wheat as for test weight (TW); thousand kernel weight (TKW); grain falling number (GFN); total flour yield (TFY); Minolta color (L*, brightness; a* and b* values, red-green and yellow-blue, respectively); alveography (T, tenacity; E, dough extensibility; T/E ratio; SI, swelling index; W, flour gluten strength; T/SI ratio;

and EI, elasticity index); hardness index (HI); and gluten content (GI, gluten index; WG, wet gluten; and DG, dry gluten). Only one Embrapa line presented ideal profile for cookies by SRC and wheat quality parameters. Significant correlations of all SRC solvents with genotype, some alveography parameters (E, T/E ratio, SI, T/SI ratio), GFN, L* and b*value were observed. Water, SC and Suc SRC were positively correlated with W and T, but not correlated with LA SRC, which probably occurred because the same W and T values can be measured with very different SRC profiles.

The results suggest that SRC test could be used as an indicator of wheat quality. However, when enough amount of samples are available, the official methods of analyses, including the end-product making, are the best options to characterize wheat technological quality. ■

REFERENCES:

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