Combined Meal PPO and Sedimentation Test for Hard White Wheat Early-generation Screening. (C03ibrahim153630-Poster)

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Abstract:

Hard White Winter Wheat (HWWW) varieties require excellent bread-making qualities and the noodle quality of minimal polyphenol oxidase (PPO) activity. Two predictive tests for these qualities, SDS-sedimentation and L-DOPA PPO, were combined into a single protocol to enable efficient earlygeneration screening. Spectrophotometric and visual PPO seed data and meal SDS-sedimentation data from three replications of 31 advanced winter wheat lines at three locations were used as standards in developing the combined protocol. In the final revision of the sedimentation protocol, 4 ml 10mM L-DOPA replaced water, ambient temperature was held at 25 degrees C., lactic acid concentration was decreased from 20 ml to 5 ml in 1 liter 2 % SDS solution to increase the pH from 3.5 to 6.0, buffer concentration was increased from 50 mM to 150 mM MOPS, and the measurement time was lengthened from 27 minutes to 42 minutes for optimum color development and stable sediment depth. The combined protocol identified favorable PPO activity as efficiently as the standard tests. Sedimentation values from the combined protocol were consistently lower than the original protocol, without change in rank.

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