Effects of Aging New Crop Wheat and Whole Wheat Flour on Breadmaking Quality and Glycolipid Composition

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Statement of Problem:
Whole wheat flour deteriorates faster than does white flour due to the presence of lipids in the germ and bran mixture. Enzymes released by the bran and germ result in the formation of oxidized fatty acids. These hydrolysis and oxidation reactions are known to deteriorate the baking quality of whole wheat flour. Aging new crop wheat and freshly milled whole wheat flour for increasing periods of time at two extreme temperatures have an unknown effect on breadmaking quality and lipid composition. Polar lipids, such as glycolipids, are known to have a positive impact on breadmaking quality. Any delirious changes to the glycolipid fraction during storage would affect bread quality. Changes in glycolipid composition during whole wheat flour and new crop wheat storage could assist in identifying how whole wheat flour baking quality decreases over time. The results could determine factors contributing to whole wheat flour instability. Changes occurring in both the new crop wheat and the milled whole wheat flour must be identified so work can be done to limit the variations in baking quality that manufacturers face.

Goals:
- Determine how post milling storage time and temperature affect glycolipid composition and breadmaking quality of whole wheat flour
- Determine how storage time and temperature affect glycolipid composition and breadmaking quality of new crop wheat

Recent Publications:

Current Activities:
Lipid extraction and profiling, bake tests, and whole wheat milling procedures are being practiced before the wheat harvest of 2011 when testing will begin. Currently searching for articles pertaining to whole wheat milling practices, lipid composition of whole wheat flour, effects of storage time and temperature on lipids in flour, and the functions of lipids in breadmaking.