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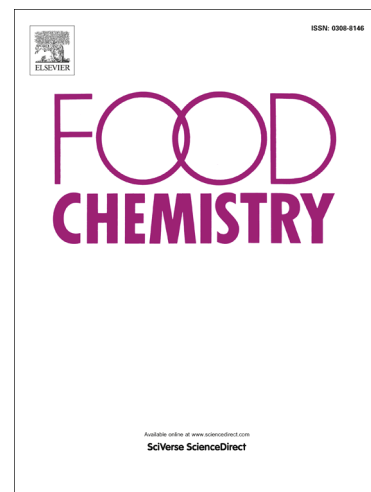
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Changes in enzymatic activities and functionality of whole wheat flour due to steaming of wheat kernels

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ABSTRACT

The effects of steaming wheat kernels on lipolytic degradation of resulting whole flour was studied by quantifying enzyme activities and lipid degradation products during storage. Lipase, lipoxygenase, polyphenol oxidase, and peroxidase activities were decreased by up to 81%, 63%, 22%, and 34%, respectively, as the time of steaming increased up to 90 s. Steaming had no effect on starch and gluten properties. Upon storage free fatty acids decreased with respect to time of steaming. Time of steaming did not affect lipid oxidation in flour; however, total carbonyls produced in dough made from stored flour were decreased with the increase in steaming duration. Thus, steaming wheat kernels prior to milling reduced lipase activity and consequently hydrolytic rancidity during storage without affecting starch and gluten fractions. Steam treatment did not affect oxidative rancidity in flour during storage, but did reduce oxidation once the flour was made into a dough.

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