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# Reduction of aflatoxin B<sub>1</sub> contamination in wheat by various cooking treatments

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## Abstract

To investigate the effects of various cooking treatments such as washing, heating and steaming on the reduction of aflatoxin toxicity, a simultaneous analytical method for aflatoxin B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub>, G<sub>2</sub> was established using high performance liquid chromatography (HPLC) with a fluorescence detector. The levels of aflatoxin B<sub>1</sub> (AFB<sub>1</sub>) spiked in wheat—three varieties of United States (US) wheat and two varieties of Korean wheat—were analyzed according to washing time and heating temperature. Reduction of AFB<sub>1</sub> toxicity was directly proportional to washing time in both Korean and US wheat. The concentration of AFB<sub>1</sub> was reduced more by heating than washing treatment. The level of AFB<sub>1</sub> in dried wheat was decreased to 50% and 90% by heating at 150 and 200 °C, respectively. However, the reduction of AFB<sub>1</sub> in wet wheat in which water (10%) was intentionally added was higher by heating than in dried wheat. The reduction of AFB<sub>1</sub> was increased by 8% and 23% in 10% water-added US wheat (soft red white

wheat) and Korean wheat (Anbaekmil) compared to dried US and Korean wheat, respectively, through heat treatment. Traditional processing used in Korean foods such as Sujebi (a soup with wheat flakes) and steamed bread caused 71% and 43% decrease in aflatoxin B<sub>1</sub> content.



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## Keywords

Aflatoxin B<sub>1</sub>; Toxicity reduction; Cooking; Wheat; High performance liquid chromatography (HPLC)

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