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Title: Color Difference and Acrylamide Content of Cooked Food

Author: [Bong-Kyung Koh](#)

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Abstract: To investigate the relation between browning color and Acrylamide (AA) content of cooked foods, commercially roasted cereals (barley and corn) were purchased from local markets and French fries and *yakwa* (a traditional Korean fried wheat flour dough) were prepared at the laboratory as a model system. Roasted barley powder for tea bags had the darkest color, whereas roasted barley kernels contained highest amount of AA. There was no significant (at $p < 0.01$) correlation between the color difference and the amount of AA in market-purchased roasted cereals. However, when there were equal raw materials and the same recipe was used at the model system there was a highly significant ($p < 0.0001$) correlation between color difference and AA content. Both frying time and temperature significantly affected AA content and color. The addition of reducing sugar to *yakwa* did not increase the AA content but was mainly involved in the browning reaction. The above results indicate that the color change due to the browning reaction of market-purchased roasted cereals cannot be an indicator of AA content and the recipe, processing conditions and raw materials should be controlled to compare the relation between color difference and the amount of AA in fried or roasted food.

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