

**Title** Why greening in garlic and pinking in onion occur after processing?  
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#### **Abstract**

Garlic (*Allium sativum* L.) and onion (*Allium cepa* L.) develop green and pink discoloration after processing. This discoloration is known to originate from reactions of the enzyme (alliinase) with the flavor precursor compounds alk(en)yl cysteine sulfoxides (ACSOs), especially 1-propenyl cysteine sulfoxide (1-PeCSO, isoallin). Despite having a similar structure, generated pigments are green in garlic and pink in onion. In an attempt to understand differences in the mechanism of color formation, model solutions were made by mixing heated onion extracts and crude garlic enzyme (alliinase) in different ratios. When crude garlic enzyme concentration was high, green pigment was formed, but when the concentration of heated onion extracts was high, a pink color was formed. Color variation was assumed to be caused by the ratios of enzyme concentrations in cooked onion extracts. We postulate that green discoloration occurred in garlic containing trace amount of 1-PeCSO and high amounts of alliinase, while pink coloration occurred in onion with high amounts of 1-PeCSO and low amount of alliinase.