

Estimation of dialyzed melanoidin and tasty substances in fish sauce and soy sauce with the treatment of electro dialysis.

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Summary

A HPLC technique was used to evaluate iron(II) chelating activity of melanoidin in fish sauce and soy sauce. Dialysis of soy sauce samples was found to be essential to the HPLC technique. Twenty samples of fish sauce and soy sauce produced in Asian countries were subjected to electro dialysis and measured for the amounts of melanoidin and sodium chloride retained in the dialyzed sauces. The dialyzed sauces retained less than 0.045% of sodium chloride and more than 81% of melanoidin except for two fish sauces and one soy sauce. The color intensity of melanoidin in sauce measured by optical density at 450 nm was raised by addition of iron(II) sulfate. It suggests that melanoidin in the soy sauce and fish sauce has a potent ability to chelate iron.

The dialyzed sauces were determined for iron(II) chelating activity by HPLC using a gel permeation column equilibrated with pH 4 acetate buffer (0.01M) containing 0.1 mM iron(II) sulfate. The Fe-complex of each sample was detected on melanoidin fractions and in uncolored fractions, and the characteristics of the sample was represented by the elution profiles of Fe-complex. The results show that the amount of iron chelated per ml of electro dialyzed soy sauce ranged from 0.11 to 1.95 mg, and that of the fish sauce ranged from 0.13 to 0.50 mg. The chelating activity of soy sauce was larger than that of fish sauce. The chelating activity of the sauces was not always correlated with the color intensity at 450 nm of the samples.