

Improving the Flavor of Soy Ice Cream by Adding Lemongrass or Pandan Leaf Extracts

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ABSTRACT

Lemongrass or pandan leaf extracts were used separately to improve the flavor of soy ice cream. Lemongrass or pandan leaf extracts with water in concentrations of 10:100, 15:100, and 20:100 w/w were examined using sensory evaluation for the best flavor acceptance. The best ratio was selected to spray dry using maltodextrin as the drying medium at various concentrations (2, 4, 6, 8 and 10% w/w). A ranking preference test was used to determine the flavor of the soy ice cream. Threshold testing was used to determine the sensorial quality of soy isolate protein mixed with both herb extracts, and soy ice cream mixed with both herb extracts. The flavor compound was analyzed by using headspace, solid-phase microextraction, gas chromatography, mass spectrophotometry (HS-SPME-GC-MS). The best concentration of fresh lemongrass or pandan leaf extracts for improving the sensorial flavor of soy ice cream was 10:100 (w/w). The optimum quantity of maltodextrin for spray drying was 2% (w/w). The threshold values of fresh and powdered lemongrass extracts that could mask the beany flavor in soy protein isolate solution and soy ice cream were lower than those of fresh and powdered pandan leaf extracts. The beany flavor in soy protein isolate solution and soy ice cream was mainly composed of hexanal, pentanal, benzaldehyde, 2-pentyl-furan and 1-octen-3-ol. The flavor compounds in pandan leaf extract were 2-acetyl-1-pyrroline and 3-methyl-2(5H)-furanone, while those of lemongrass extract were β -myrcene, α -pinene, 3-carene, neral, geranial and geraniol. From the results of HS-SPME-GC-MS, the beany flavor was masked by these extracts. This indicated that lemongrass and pandan leaf extracts could mask the beany flavor and improve the sensorial quality of soy ice cream.

Keywords: Ice cream, Lemongrass, Pandan leaf, Beany flavor, Headspace, Solid-phase microextraction, Gas-chromatography, Mass spectrophotometry