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Czech J. Food Sci.

**R. Vidrih, E. Zlatić, J.
Hribar:**

Release of Strawberry Aroma Compounds by Different Starch-Aroma Systems

Czech J. Food Sci., 27 (2009): S58-S61

In the food industry, the addition of flavours is used to reinforce the aroma profile of different goods. However, interactions between starch and aroma compounds can occur, and this can impact upon aroma release and perception. In the present study, we have investigated the influence of starch type on aroma release from starch-aroma systems. The food model system used was composed of an aqueous starch dispersion (1 g dry starch/100 g dispersion) and 10 aroma compounds (ethyl butanoate, ethyl 2-methylbutanoate, ethyl 3-methylbutanoate, ethyl pentanoate, methyl hexanoate, ethyl hexanoate, methyl ethyl propanoate, hexyl acetate, 3-hexenol, and phenyl methyl acetate). Different commercially available starches were used: Amilogels P, K, PDP, G, MVK, HP, OK and HPW, and carrageenan

(Amilogel CAR) and guar gum (Amilogel GG). Aroma release from these starch-aroma systems into the gas phase above food (headspace) were monitored by GC-MS analysis with a solid-phase micro-extraction technique. The smell of the starch-aroma system was also evaluated sensorially by a trained panel. The release of aroma compounds from the different starch-aroma systems was statistically significant ($P < 0.0001$) for all of the aroma compounds, with the exception of ethyl pentanoate. A correlation between the concentration of individual aroma compounds in the headspace and the sensory evaluation (smell) was seen. Starch-aroma systems comprising corn starch (Amilogel G), physically modified starches that are soluble in cold water (Amilogels K, PDP), and hydroxypropyl distarch phosphate (Amilogels HP) had sensorially superior smells compared to the other types of starches tested. At the same time, the headspace GC-MS analyses showed ethyl butanoate, ethyl 2-methylbutanoate, ethyl 3-methylbutanoate and ethyl pentanoate to be at the highest concentrations, which are all typical

aroma compounds of strawberry malt, and which also have low perception thresholds. Dextrin-roasted starch, guar gum and carrageenan provided the lowest sensory scores, although in contrast, they more strongly retained these aroma compounds.

Keywords:

strawberry; aroma compounds; starch; GC-MS; sensory evaluation

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