Preparation of pork flavor

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ABSTRACT

Pork flavors were used widely in food industry for flavoring instant foods, instant noodles, meat products, snacks…and so on. Most of the pork flavors used in food industry were prepared by reacting the flavor precursors of pork in close systems. In this study, pork was hydrolyzed using commercial available proteolytic enzymes Neutrase, Bromelain, Papain, Protease, Flavourzyme, and Corolase S-50. The best conditions for the pork hydrolysate preparation were determined. The pork hydrolysate with higher hydrolysis degree and less bitterness was then used to react with some pork flavor precursors, (i.e. cysteine.HCl, thiamine. HCl, and xylose) to prepare a pork flavor. The best addition amounts of these precursors were determined using a response surface methodology and the sensory evaluation method. After reaction using a formula consisting of the best addition amount of pork hydrolysate, thiamine.HCl. cysteine.HCl, and xylose, volatile compounds in each reaction product consisting one, two, three, or four individually reactants were compared after being isolated and analyzed using GC and GC-MS. The volatile isolate from the reaction product using a formula consisting the best amount of pork hydrolysate, thiamine.HCl. cysteine.HCl, and xylose were further fractionated using a acid/base fractionation method to study the important volatile compounds exist in the pork flavor prepared. The pork hydrolysate by Flavourzyme treatment was found to have the highest hydrolysis degree and the best total sensory acceptance. The pork hydrolysate by Protease or Corolase S-50 treatment was found to have the highest bitterness and less sensory acceptance. Two stage enzyme hydrolysate of pork by papain-flaovourzyme (P-F) treatment was found to have higher hydrolysis degree and total sensory acceptance than that using the individually enzyme. Volatile compounds found in the heated pork hydrolysate by P-F a two stage treatment can be grouped into acids, aldehydes, alcohols, furans, hydrocarbons, ketones, pyrazines, cyclic sulfur-containing compounds, and acyclic sulfur-containing compounds. By using response surface methodology combine with a sensory evaluation methodology analysis, it was found that the best addition amount of cysteisn.HCl, thiamine.HCl, and xylose was 2.2 g, 6.7 g., and 7.13 g individually, when the amount of P-F pork hydrolysate was fixed at 200 g. Volatile compounds in the heated solutuion using the best addition amount mentioned above were found to be aldehydes, alcohols, ketones, furans, pyrazines, thiophenes, thiazoles, thiols, monosulfides, and disulfides. Among those compounds found in the above pork flavor, 2-methyl tetrahydrofuran-3-one, 2,5-dimethylpyrazine, 2-acetylthiazole, 4,5-dimethylthiazole, 3-mercapto-2-methyl-4,5-dihydrofuran, 2-methyl-3-furanthiol, 3-mercapto-2-pentanone, methyl 2-methyl-3-furyl disulfide, abd bis(2-methyl-3-furyl)disulfide were found to be the important meaty compounds, and methyl pyrazine, bis(2-furfuryl)disulfide were found to be the important roasty compounds, and furfuryl mracaptan and furfural were founds to be the important coffee-like or caramellic compounds.

Keywords : flavor ; pork flavor

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