

ABSTRAK

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MODIFIKASI TEPUNG GAPLEK DAN TAPIOKA DENGAN MICROWAVING-COOLING MULTISIKLUS DALAM PEMBUATAN MI LETHEK

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(xx + 79 halaman: 44 gambar; 9 tabel; 25 lampiran)

Mi *lethek* adalah salah satu makanan tradisional khas Yogyakarta berbahan dasar tepung tapioka dan gapelek. Mi *lethek* memiliki *cooking loss* yang tinggi, dan dapat diturunkan dengan memodifikasi tepung tapioka dan gapelek sebagai bahan baku dengan metode fisik *microwaving-cooling* multisiklus. Tujuan dari penelitian adalah untuk menentukan pengaruh jumlah siklus *microwaving-cooling* terhadap kadar amilosa tepung tapioka dan gapelek; menentukan jumlah siklus *microwaving-cooling* terbaik berdasarkan kadar amilosa tertinggi tepung tapioka dan gapelek; menentukan pengaruh rasio tepung tapioka dengan gapelek hasil modifikasi dan konsentrasi guar gum terhadap karakteristik mi *lethek*; serta menentukan rasio terbaik tepung tapioka dengan gapelek hasil modifikasi *microwaving-cooling* dan konsentrasi guar gum berdasarkan *cooking loss*, tekstur, dan karakteristik sensori mi *lethek*. Tepung tapioka dan gapelek dimodifikasi dengan metode *microwaving-cooling* multisiklus. Tepung diberi perlakuan *microwave* dengan daya 765 W selama 3 menit, dan didinginkan pada suhu ruang selama 45 menit lalu didinginkan pada suhu 4°C selama 24 jam. Mi *lethek* dibuat dari tepung tapioka dan gapelek hasil modifikasi terbaik dengan variasi rasio tepung tapioka dan gapelek (25:75, 50:50, dan 75:25) serta penambahan guar gum dengan konsentrasi yang berbeda (0; 0,5; 1; dan 1,5%). Hasil penelitian menunjukkan metode *microwaving-cooling* 3 siklus menghasilkan kadar amilosa tertinggi untuk tepung tapioka dan gapelek, yaitu sebesar $31,06 \pm 3,87$ dan $41,86 \pm 3,33\%$. Semakin banyak tepung tapioka termodifikasi dan semakin tinggi konsentrasi guar gum yang ditambahkan, semakin rendah *cooking loss* mi *lethek*. Jumlah siklus *microwaving-cooling* terbaik untuk meningkatkan kadar amilosa tepung tapioka dan gapelek adalah sebanyak 3 siklus. Mi *lethek* dengan rasio tepung tapioka dan gapelek termodifikasi 25:75 dengan penambahan guar gum 0,5% merupakan mi *lethek* dengan formulasi terbaik. *Cooking loss* mi *lethek* yang dibuat dari tepung tapioka dan gapelek hasil modifikasi *microwaving-cooling* 3 siklus lebih rendah dibandingkan dengan mi *lethek* dari tepung tapioka dan gapelek yang tidak dimodifikasi dan tanpa penambahan guar gum.

Kata Kunci : *cooking loss*, guar gum, amilosa, *microwaving-cooling*, mi *lethek*, gapelek, tapioka

Referensi : 122 (1996-2019)

ABSTRACT

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MODIFICATION OF CASSAVA AND TAPIOCA FLOURS BY MULTI-CYCLE MICROWAVING-COOLING IN LETHEK NOODLE MAKING

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Lethek noodle is one of the traditional foods of Yogyakarta made from tapioca and cassava flours. *Lethek* noodle is known to have high cooking loss, which can be reduced by modifying tapioca and cassava flours as raw materials by physical method of multi-cycle microwaving-cooling. The purpose of this study are to determine the effect of microwaving-cooling cycles on the amylose content of tapioca and cassava flours; determine the best number of microwaving-cooling cycles based on the highest amylose content of tapioca and cassava flours; determine the effect of the ratio of modified tapioca to cassava flours and the concentration of guar gum added on the characteristics of *lethek* noodle; and determine the best ratio of modified tapioca to cassava flours and concentration of guar gum added based on cooking loss, texture, and sensory characteristics of *lethek* noodle. Tapioca and cassava flours were modified by multi-cycle microwaving-cooling method. Tapioca and cassava flours were microwaved with a power of 765 W for 3 minutes, then cooled in room temperature for 45 minutes, and cooled in 4°C for 24 hours. *Lethek* noodle is made from modified tapioca and cassava flours with variation of tapioca to cassava flours ratio (25:75, 50:50, and 75:25) and the addition of guar gum with different concentrations (0; 0.5; 1; and 1.5%). The results showed that the 3-cycles of microwaving-cooling method gave the highest amylose content for tapioca and cassava flours, which amounted to 31.06 ± 3.87 and $41.86 \pm 3.33\%$ respectively. The more modified tapioca flour and the higher concentration of guar gum added, the lower the cooking loss of *lethek* noodle. The best number of microwaving-cooling cycles to increase the amylose content of tapioca and cassava flours is 3 cycles. *Lethek* noodles made of modified tapioca and cassava flours with the ratio of 25:75 and the addition of 0.5% guar gum is the best formulation of *lethek* noodles. The cooking loss of *lethek* noodle made from tapioca and cassava flours modified by microwaving-cooling 3 cycles is lower than that of *lethek* noodles made from unmodified tapioca and cassava flour.

Keywords : amylose, cassava, cooking loss, guar gum, lethek noodle, microwaving-cooling, tapioca, guar gum

References : 122 (1996-2019)