

## INTISARI

Temuan BPOM pada tahun 2012 menunjukkan 23,89% sampel Pangan Jajanan Anak Sekolah (PJAS) Tidak Memenuhi Syarat (TMS) yang disebabkan penggunaan bahan berbahaya, cemaran mikroba, maupun bahan tambahan pangan yang berlebihan. Lebih lanjut, selama periode 2012 – 2013, bakso menempati empat ranking tertinggi jajanan yang tidak memenuhi syarat sedangkan potensi pasar bakso masih tinggi di Indonesia. Untuk itu, kami menawarkan sebuah kombinasi antara ikan lele yang kaya akan leusin dan lysin, baik untuk pertumbuhan dan perkembangan anak, dengan tempe yang kaya protein dan rendah garam sebagai kandungan utama bakso tusuk ikan lele dengan tempe sebagai alternatif PJAS yang bergizi. Penelitian ini bertujuan mendapatkan produk berbahan dasar ikan lele dengan penambahan tempe sebagai alternatif PJAS dan mengetahui perbedaan kandungan gizi diantara berbagai alternatif usulan produk.

Pengolahan bakso berdasarkan SNI Bakso Ikan (SNI 7266:2014). Tahapan dalam *value engineering* (VE) yaitu tahap informasi, tahap kreativitas, tahap analisis dan tahap penentuan dengan uji organoleptik dan kandungan gizi. Kombinasi *fuzzy logic* dalam VE terletak pada tahap kreativitas dan tahap penentuan untuk menentukan peringkat atribut mutu. Tahapan *fuzzy logic* sesuai dengan kebutuhan penelitian yaitu *fuzzifikasi* masukan dan proses *defuzzifikasi*. Responden yang dipilih yaitu siswa SD/MI di Kota Yogyakarta, guru, orangtua siswa serta konsumen di sekitar lokasi sekolah. Untuk mengetahui atribut mutu kebutuhan konsumen. Alternatif produk yang ditawarkan yaitu penambahan tempe 10%, 20%, dan 30%.

Konsep dengan *value* terbaik diperoleh bakso tusuk ikan lele dengan penambahan tempe 30%. Perlakuan penambahan tempe 10%, 20% dan 30% pada bakso tusuk ikan lele berbeda nyata menurun untuk kadar air, kadar abu, dan kadar lemak. Kadar protein meningkat dan berbeda nyata untuk perlakuan tempe 10% dan 20%. Serat kasar meningkat dan berbeda nyata untuk perlakuan tempe 30%, serta peningkatan karbohidrat dan pencernaan protein yang berbeda nyata untuk semua perlakuan.

Kata kunci : bakso tusuk ikan lele, *fuzzy logic*, PJAS, tempe, *value engineering*.

## ABSTRACT

The Indonesian Nasional Drug and Food Control Agency (BPOM) findings in 2012 showed that 23.89% of the schoolmeals did not meet the required standard yet due to excessive food additives, microbial and heavy-metal contamination. Meanwhile, from several types of schoolmeals, meatballs were among four highest ranking meals that are not eligible in 2012-2013 and fish meatballs has a market potential in Indonesia. We proposed combination of catfish, which contains leucine and lysine, two amino acids that are good for children's growth and development, and Tempe, an affordable of protein source which has low salt, as main ingredients of catfish meatballs skewers with extra Tempe, an alternative nutritious school meal products. This study aim to obtain catfish based product with the addition of tempe as an alternative schoolmeals and find out differences in nutrition content of the products.

The meatball skewers were processed based on SNI Fish Meatballs (SNI 7266: 2014). Value Engineering (VE), which has four stages, namely: information, creativity, analysis and determination stages by organoleptic test and nutrition content, was used in this study. Furthermore, fuzzy logic was used in the creativity and determination stages to rank the quality attributes. Stages in fuzzy logic according to the needs of the research are fuzzification and defuzzification. The respondents were students of elementary school in the city of Yogyakarta, teachers, parents and consumers around the location. Alternative products were addition of tempe 10%, 20%, 30%.

The concept with the best value was obtained for catfish meatballs skewers added with 30% of tempe. The meatballs with addition of 10%, 20% and 30% tempe showed significant lower values of moisture, ash, and fat content, but higher for its protein content, especially for those added with 10% and 20% tempe. Higher value of crude fiber was found for tempe 30% treatment. Significant differences on carbohydrates and digestibility of protein were also observed for all treatments.

**Keywords:** catfish meatballs skewers, fuzzy logic, schoolmeals, tempe, value engineering.