

Identification of Formalin in Meatball Sold at Palopo City Food Stalls using Schryver Method Approach

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ABSTRACT

Formalin, a solution containing 30-50% formaldehyde gas (CH₂O), finds applications in various sectors such as corpse preservation, disinfection, and the production of plastics and anti-foaming agents. Despite its industrial benefits, formalin is often misused as a preservative in the food industry, particularly in perishable items like meatballs. This research employs a descriptive method to provide an overview of formaldehyde identification in meatballs. Ten meatball samples were collected from permanent stalls in Palopo City for analysis. Laboratory tests conducted qualitatively using the Test Kit method revealed negative results (-) for formalin content in all samples. No color changes were observed in the tested meatballs, indicating the absence of formalin.

KEYWORDS: Formalin, Meatballs, Schryver

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INTRODUCTION

The utilization of food additives (BTP) has undergone significant development over time, presenting both benefits and risks that necessitate careful consideration by producers and consumers alike. One notable aspect is the widespread use of preservatives to maintain the freshness of perishable foods. However, violations persist in society, evident through the excessive use of formalin and non-food preservatives in food products, despite their potential health hazards (Sari, Sabilla & Sarah, 2022).

Meatballs, a popular food item in Indonesia, are prepared from processed meats such as chicken, pork, or beef, combined with various spices and tapioca flour before being boiled. The misuse of formalin in such perishable products aims to prolong their shelf life due to their high protein and moisture content, rendering them susceptible to spoilage within a day at room temperature. Reports from authorized agencies and researchers reveal the widespread misuse of formalin in food across several major cities in Indonesia, including Yogyakarta, Lampung, and Makassar. Laboratory tests conducted by the National Agency of Drug and Food Control (BPOM) found formalin present in

various processed foods, including meatballs (Salawati, Andi Aulia Warsyidah et al., 2019).

In Palopo city, meatball vendors are plentiful, offering easy access to this favored dish at affordable prices. However, the use of preservatives in meatballs and other food items raises concerns regarding food safety and public health. Preservatives, intended to prevent microbial spoilage, are often added to food products. While they serve a vital role in extending shelf life, their excessive use may have adverse health effects. Food additives can be categorized as intentional, deliberately added for specific purposes, or unintentional, present in trace amounts due to processing (Wulan, 2015).

Formalin, a solution of formaldehyde gas, is widely employed in various industries, including food preservation, despite being prohibited. Its antimicrobial properties make it appealing for extending the shelf life of food products such as fish, tofu, noodles, and meatballs (Wahyudi et al., 2017). Despite formalin's efficacy as a preservative, its unauthorized use in food presents health risks to consumers. Meatballs, governed by Indonesian National Standard No. 01-3818 1995, are required to contain a minimum meat content of 50%. While formalin-

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treated meatballs may appear similar to untreated ones, careful observation can reveal differences in their physical characteristics (Sari, Asterina & Adrial, 2014).

Research Method

The research design employed in this study is descriptive research. According to Sugiyono (2019), descriptive research is conducted to determine the existence of independent variables, whether one or more, without making comparisons or linking them to other variables. This type of research provides a description or narrative regarding the identification of formalin in meatballs from meatball stalls in the city of Palopo. Location, Venue, and Time of Research This research was conducted on August 24, 2023.

The sampling location was several meatball stalls in Palopo City (Stalls A, B, C, D, E, F, G, H, I, and J).

The research was carried out at the Pharmacy Laboratory of Bhakti Pertiwi Luwu Raya Palopo Health Sciences College. Materials and Methods The materials used in this research are distilled water, formalin, and meatballs. The tools used in this research are measuring glasses, digital scales, test tubes, blender, stirring rods, plastic containers, test kits, and test tube racks. Samples were obtained from meatball stalls located in Palopo City.

Procedure

The meatball samples taken from each meatball vendor were packed in dry plastic containers. Each plastic container was assigned a specific code indicating the initials of the meatball stall where the sample was taken. Subsequently, the meatball samples were transported to the pharmacy laboratory for physical characteristics observation and sample testing. The samples were ground and weighed using an analytical balance, with 25 grams of sample added to 50 ml of hot water, stirred, and allowed to cool. Three milliliters of the mixture were then taken and tested by adding 1 drop of Reagent A and 3 drops of Reagent B, shaken, and left for 15 minutes. If the sample tested positive for formalin, the liquid color would change to purple.

RESEARCH RESULTS

The research conducted on August 24, 2023, involved observing the physical characteristics of meatballs organoleptically, as well as laboratory-based testing using reagents. The reagent used was the Schryver Test Kit. The data generated from this research are as follows: Observation of Meatball Physical Characteristics The organoleptic observation of meatball physical characteristics was performed by observing and recording changes in parameters used as reference by the researcher, namely texture, color, taste, and odor.

Table 1. Results of Meatball Physical Characteristics Observation

Meatball Samples	Assessment of Observed Parameters			
	Texture	Color	Smel	Taste
Meatball A	Not sticky and not wet.	light Grey	Typical smell of fresh meat	More meaty taste dominant
Meatball B	Not sticky and not wet	light Grey	The spice smell is sufficient Dominant	taste of sufficient spices stand out
Meatball C	Not sticky and not wet	light Grey	The distinctive smell of fresh meat	More Meaty taste dominant
Meatball D	Not sticky and not wet	light Grey	The distinctive smell of fresh meat	More Meaty taste dominant

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Meatball Ei	Not sticky and not wet	light	Grey	The distinctiv e smell of fresh meat	More Meaty taste dominan t
Meatball F	Not sticky and not wet	light	Grey	The spice smell is sufficien t Dominant	More Meaty taste dominant
Meatball G	Not sticky and not wet	light	Grey	The spice smell is sufficien t Dominant	More Meaty taste dominant
Meatball H	Not sticky and not wet	light	Grey	The distinctiv e smell of fresh meat	More Meaty taste dominant
Meatball I	Not sticky and not wet	light	grey	The distinctiv e smell of fresh meat	More Meaty taste dominant
Meatball J	Not sticky and not wet	light	grey	The distinctiv e smell of fresh meat	More Meaty taste dominant

Based on the research results presented in Table 1, the observation of meatball physical characteristics from the 10 samples examined revealed variations in texture, color, odor, and taste. Qualitative Formalin Test Using Schryver Reagent Test Kit The qualitative testing of meatballs for

formalin content from 10 meatball samples sold in several stalls in Palopo City was conducted at the Pharmacy Laboratory of Bhakti Pertiwi Luwu Raya Health Sciences College.

Table 2 Results of Qualitative Test for Formalin Content

Source Sample	ColorChange	Results Observation
Stall A	No Colour Change	(-)
Stall B	No colour Change	(-)
Stall C	No colour change	(-)

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Stall D	No colour change	(-)
Stall Ei	No colour change	(-)
Stall F	No colour change	(-)
Stall G	No colour change	(-)
Stall H	No colour change	(-)
Stall I	No colour change	(-)
Stall J	No colour change	(-)

Based on the research findings

As shown in Table 2; (Samples A, B, C, D, E, F, G, H, I, J), all tested meatball samples exhibited negative results with no color changes observed after testing using the Test Kit.

Discussion The research

utilized Schryver reagent with a test kit method to examine meatballs, where the principle involved adding reagent liquid to the meatballs under investigation. Color changes would occur when the Schryver Reagent Test Kit reacted with formalin. A positive result indicates a color change to purple, while a negative result indicates no color change in the tested sample. Table 1, pertaining to the observation of meatball physical characteristics, included 10 samples under study. Samples A to J shared similar texture characteristics, namely non-sticky and non-wet. In terms of color, three samples exhibited a light gray color (Samples A, C, D, and E), three samples exhibited a dark gray color (Samples F, G, and H), and two samples displayed a light gray color (Samples I and J). Regarding odor, six samples had a characteristic fresh meat aroma (Samples A, C, D, E, I, and J), while four samples had a relatively dominant seasoning aroma (Samples B, F, G, and H). In terms of taste, five samples had a more dominant meat flavor (Samples A, C, D, E, I, and J), while four samples had a reasonably prominent seasoning taste (Samples B, F, G, and H). Table 2 presents the results of the qualitative test for formalin content. None of the ten samples showed any color changes, indicating negative results. This study suggests that none of the meatball samples from the examined stalls contained formalin.

CONCLUSION

Based on the research on the Qualitative Analysis of Formalin in Meatballs Sold in Meatball Stalls in Palopo City Using the Schryver Method, the following conclusions can be drawn: Meatballs sold in several meatball stalls in Palopo City were found to be free from formalin content in all samples, as indicated by the absence of color changes in the test results. The observation of meatball physical characteristics from the 10 tested samples revealed variations in texture, color, odor, and taste. Recommendations. The public is advised to remain vigilant and careful in selecting healthy and safe meatballs for consumption. Meatball vendors are encouraged to increase awareness and refrain from using formalin as a food additive due to its potential health risks.

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