

SHARIA AND ALCOHOL: TAPE KETAN AS TYPICAL FARE OF MUSLIMS IN BATUSANGKAR

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ABSTRACT

The study conducts alcohol testing of Batusangkar tapé ketan, and subsequently discusses whether it is halal for consumption according to the perspective of Sharia (Islamic Law). This study is resolved through field research and literature study. Chemical data were obtained through tests carried out in the laboratory. The results of the laboratory study were then examined by way of literature study to determine its Islamic legal. Based on the study results, it was found that the alcohol content of Batusangkar tapé ketan that had been left to ferment for five days increased up to 9.26%. The Islamic law study results found that Batusangkar tapé ketan despite containing alcohol is halal for consumption up to the fourth day of fermentation because the alcoholic fermentation material is not derived from the liquor (khamr) industry.

Keywords: Tape Ketan, Alcohol, Sharia

INTRODUCTION

Batusangkar tapé ketan (fermented glutinous rice) is a type of food made from black glutinous rice that comes from the Batusangkar region in West Sumatra Province, Indonesia. Tapé ketan is a food product made through fermentation, wherein a metabolic process occurs involving change of complex materials. Starch existing within raw food material is altered into a simpler form, which is sugar, with the help of a microorganism called yeast or Khamir. Khamir has the ability to breakdown carbohydrates into alcohol and carbon dioxide (Hasanah et al., 2012).

Studies on the alcohol content of tapé ketan have been conducted since a long time ago. T.C Cronk conducted a study on the alcohol content produced by fermentation of tapé ketan. T.C Cronk proved that isobutanol, active amyl, and isoamil are produced throughout the fermentation process of tapé ketan (Cronk et al., 1979). The duration of fermentation can also increase the alcohol content in tapé ketan (Mulja, 2003). Hasanah also found similar results (Hasanah et al., 2012).

Alcohol is any organic compound that carries a functional group called hydroxyl (-OH) bound to a carbon atom. The general formula for alcohol compounds are R-OH or Ar-OH, where R is the alkyl group and AR is the aryl group. Alcohol abuse may cause physical effects (harm), such as drunkenness, weight loss, stomach pain, numbness in the arms and legs, slurred speech, balance problems, and so forth.

The consumers of Batusangkar tapé ketan are Muslims. The presence of alcohol in tapé ketan leads to a question concerning its permissibility (halal) for consumption according to

Islamic Law. Allah SWT says in Surah Al-Māidah verse 88: “*And eat of what Allah has provided for you [which is] lawful and good. And fear Allah, in whom you are believers*”.

Fatwa of the Indonesian Ulema Council (MUI) No. 11/2009 concerning alcohol determines that alcoholic beverages, which are beverages that contain ethanol and other derivative compounds such as methanol, acetaldehyde, and ethyl acetate that are made through a fermentation process employing various natural raw materials containing carbohydrates, are haram (forbidden or prohibited).

As a favorite fare in Batusangkar, the alcohol content of tapé ketan needs to be analyzed, along with the effect that length of fermentation has on the alcohol content. In addition, since the consumers are Muslims, an analysis from the perspective of Islamic law concerning its permissibility is necessary as a safety control measure and peace of mind in consuming it. Moreover, Muslims in Batusangkar as part of the Minangkabau community have a strong religious tradition (Zainuddin, 2019). Muslims adhere to their religious teachings in relation to food consumption. According to Marin Neio Demirci, there should even be a halal assurance that can be globally accepted for sake of international food consumption safety for the Muslim community, although that is currently very difficult to find (Demirci, 2016).

MATERIALS AND METHODS

To identify the alcohol content, 25 grams of black tapé ketan was weighed then finely grounded, and 25 mL of distilled water was added. The mixture was then put in a rounded bottom flask, and the distilling flask was affixed to the distillation apparatus with temperature set at 78°C–100°C. The distillate was subsequently collected in a separate container. The distillation process was halted when there was no distillate left dropping into the container. The collected distillate was weighed in gram unit, and inserted into a small 10 ml size bottle, which was then tightly shut.

RESULTS AND DISCUSSION

Tapé Ketan and how it's made

Tapé ketan is a fermentation in which a mold is combined with yeast that converts the taste of steamed rice into a sweet sour and alcoholic product (Cronk et al., 1977). Muhammad Asnawi states that tapé are fermented products made out of starches such as cassava, glutinous rice (ketan), and so forth by putting yeast in the making process (Asnawi, 2013). Berlian et al. explains fermentation as applying microbial metabolism to convert raw materials into more valuable products, such as organic acids, single cell protein, antibiotics, and biopolymer. The fermentation process produces ethanol and CO₂. As for the fermentation mechanism of tapé, it begins with starch found in white glutinous rice and cassava, and then it is hydrolyzed into glucose. During the hydrolysis process water molecules were added into the starch molecules. The fermentation reaction is prompted by yeast, and it is used in food production, but fermentation reaction differs depending on the basic ingredients used (Berlian et al., 2016).

When the fermentation process of sugar into alcohol occurs, there is an enzyme that functions to breakdown glucose into alcohol and CO₂, called enzyme zymase which is produced by *saccharomyces cerevisiae*. The process continues to occur and will only stop when the ethanol content has increased up to the point that it is no longer accepted by the khamir (yeast) cells. The

length of fermentation is affected by factors that directly and indirectly influence the fermentation process (Azizah et al., 2012).

Alcohol and Liquor (Khamr)

Alcohol is a compound that carries hydroxyl functional group ($-OH$) bound to the aliphatic carbon chain. In the alcohol molecules, the $-OH$ functional group is attached to a carbon atom by a covalent bond. Alcohols that carry a single $-OH$ group are called monoalcohols, while those that have more than one $-OH$ group are called polyalcohol's. The general molecular formula for alcohols is $C_nH_{2n+1}OH$ or it is written $R-OH$, an H atom from alkane is replaced by OH group. Alcohol tends to have a relatively higher boiling point compared to hydrocarbon compounds with the same amount of carbon atoms. This is due to intermolecular force and hydrogen bonding between alcohol molecules as a result of polar hydroxyl group (Fessenden, 1989).

According to the majority of the medical world, liquor includes all liquid that contain certain alcohol content. The chemical properties of alcohol, namely, are flammable, easily combined, and soluble in water; its solubility is caused by the structural similarity between alcohol ($R-OH$) and water ($H-OH$). Alcohol affects glutamate receptor hence reducing the level of an individual's ability to perform tasks and activities. This leads intoxicated individuals to experience slurred speech, loss of consciousness/memory, and lack of coordination.

In Islam, liquor is called khamr, which is any type of intoxicating beverages, and the legal ruling for its consumption is categorized as prohibited (haram). Beverages included in the khamr category are any type of beverages that have the similar properties of khamr, which is intoxicating. Abu Hanifa limited khamr to grapes that are cooked to a boil until it foams and then let sit until it clears up. Other than that is not considered as khamr, such as various squeezed fruit juices that may have intoxicating potentials and are not prohibited for consumption. To the majority of ulemas, anything that is consumed (by way of drinking or eating) under normal conditions by a normal person and causes intoxication is considered as a type of khamr and it is legally considered unlawful to consume either a little or a lot (Taufiqin, 2015). Ibrahim Hosen also asserts nearly the same perspective concerning liquor (Fessenden, 1989). Meanwhile, Ahmad Azhar Basyir explains about the perspectives of ulemas about the impurity of khamr. The majority of Islamic legal experts (fuqaha) argue that khamr is not an impurity (Basyir, 1994).

According to the Quran (Surah 5:88), there are two criteria that need to be considered when intending to consume food or beverages, namely: halal and good. In this case, it can be understood that consuming food and beverages that are both halal and good may provide benefits. Conversely, if they are neither halal nor good, then it will be damaging, although it may have not been detected at the time consumption. Khamr is one of the damaging beverages. Allah SWT prohibited khamr consumption as mentioned in the Quran Surah 5:90. Prophet Muhammad SAW stated: Do not drink khamr, for it is the key to every evil.

Committing self-harm and harming others is prohibited in Islam. Consuming khamr is considered as harming oneself. Additionally, Islam also mandates to close doors so that no harm occurs. A matter that is basically permitted may be prohibited as it may lead to danger. This theory is called sadd az-zarī'ah.

The law on alcohol according to the Islamic legal perspective had not been discussed by classical Ulemas. The Indonesian Ulema Council has issued an edict, which is Fatwa No. 11/2009 concerning the law on alcohol. Alcoholic beverages are those that contain ethanol and other compounds of which among them are methanol, acetaldehyde, and ethyl acetate that are made through fermentation by using various types of natural raw materials that contain carbohydrates; or beverages containing ethanol and/or methanol that are deliberately added in. Drinking alcoholic beverages, as specified above, is prohibited (haram). Alcohols that are derived from khamr are considered impure (najis), while alcohols that are not derived from khamr are not. Alcoholic beverages are impure if the alcohol/ethanol is derived from khamr, and alcoholic beverages are not impure if the alcohol/ethanol is not derived from khamr.

Chemical Testing of Tapé Ketan

Based on the chemical content analysis of Batusangkar tapé ketan, we obtained the alcohol contents as shown in Table 1 below:

| No | Day of Fermentation | Alcohol Content |
|----|---------------------|-----------------|
| 1 | First | 0.20 |
| 2 | Second | 1.13 |
| 3 | Third | 2.89 |
| 4 | Fourth | 5.07 |
| 5 | Fifth | 9.26 |

Yeast is a starter that facilitates alcohol fermentation to occur. So, what we examined here were not all of the microbes, but merely microbes that facilitate in alcohol fermentation. Based on the testing conducted in the study, the total yeast count found in the Tapé can be observed in the Figure 1 below:

In Figure 1 it is apparent that on the first day of fermentation, the yeast count remained low at 1.65×10^6 cfu/gram, on the second day the microbial count had risen to 6.15×10^6 cfu/gram, as was the case on the third and fourth day at 6.45×10^6 cfu/gram and 16.5×10^6 cfu/gram respectively. However, on the fifth day, the microbial count decreased to 10.2×10^6 cfu/gram.

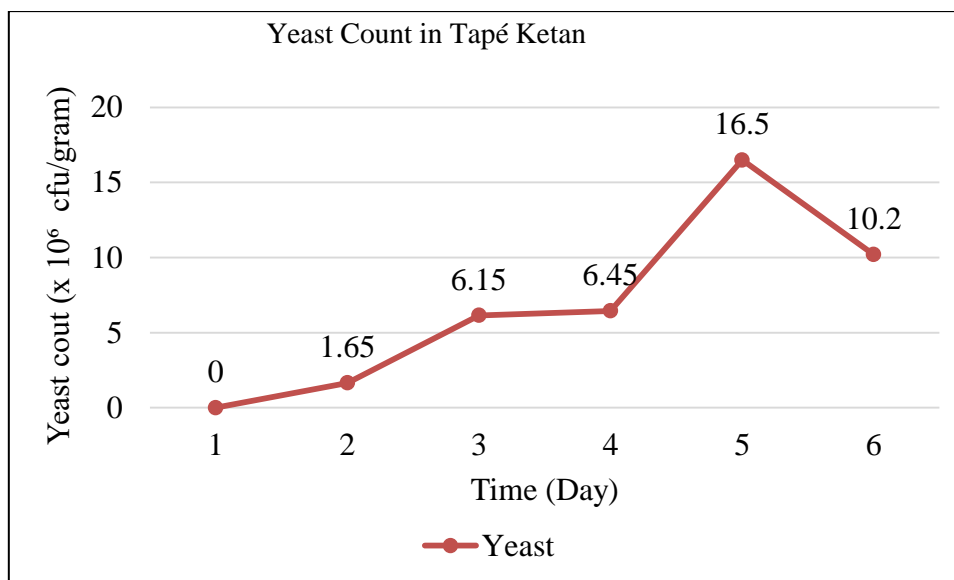


FIGURE 1
YEAST COUNT IN TAPÉ KETAN

Islamic Law (Sharia) Analysis on Batusangkar Tapé

Based on the above analyses, it is understood that there is alcohol content undergoing a significant increase in its alcohol percentage in line with longer fermentation time found in tapé ketan produced by people of Batusangkar. As mentioned before, previous studies on the ethanol content of tapé have been conducted by Hasanah et al. and Muchtariadi, although there were differences in alcohol content by the fifth day.

Based on the examination, it is also known that the panelists' preference for the aroma, texture, and taste of tapé ketan increased on the 3rd day of fermentation. This is followed by as many as 2.89% increase in alcohol percentage content. Based on the fermentation reaction presented in the reaction scheme above, it is assumed that there was a conversion of glucose into alcohol on the third day which resulted in the alcohol content affecting the aroma generated, the soft texture produced, and the the slightly sweet taste brought out in the tapé ketan.

According to the research findings, none of the panelists experienced alcohol intoxication or loss of consciousness after consuming tapé ketan. Nevertheless, it cannot be ascertained what kind of toxicity the panelists experienced, as each panelist only tasted a small amount of tapé ketan, making it likely that the effects caused by its consumption were not apparent.

Although facts indicate that the alcohol contained in Batusangkar tapé ketan increased in percentage daily until it reached 9.26% after five days of fermentation, this tapé ketan is not categorized as khamr as discussed by ulemas. This tapé ketan is not produced with the intent of making liquor or intoxicating food. The alcohol contained in tapé ketan is also not pure alcohol mixed in as one of its ingredients; it is alcohol that is naturally found in tapé ketan as a result of yeasts fermentation. Such types of alcohol are also found in other food products that are unavoidable. This is different from products such as whisky, wine, brandy, and others of their

kind which are purposely produced as hard liquors. Therefore, it can be concluded that the tapé ketan made by the people of Batusangkar is halal (permissible) to consume.

However, bearing in mind the chemical testing results of tapé ketan indicating a significant increase in alcohol content on the fourth day at 5.07% and on the fifth day at 9.26% with a tendency for it to rise daily, despite being refrigerated, we are of the opinion that the ruling for consuming tapé ketan is makruh (discouraged/strictly to be avoided) on the fifth and subsequent days. This ruling is based on the concept of sadd az zariah (closing off the path that lead to evil). Our point of concern is that people who consume tapé ketan will get drunk as a result of the progressively higher natural alcohol content. Such indication was observed in the organoleptic testing carried out by the panelists who felt their body become warmer, and the aroma becoming more intense on the fourth and fifth day, which is brought about by the alcoholic reaction occurring in the tapé ketan.

CONCLUSION

Based on the chemical test results of Batusangkar tapé ketan, a progressively increasing amount of alcohol content reaching 9.26% by the fifth day was found. Islamic legal analysis on chemical testing results concludes that Batusangkar tapé ketan is neither an intoxicating food nor liquor (khamr). Therefore, it is halal (permissible) for consumption up to the fourth day of fermentation despite containing alcohol. However, starting from the fifth and subsequent days of fermentation it is makruh (discouraged/strictly to be avoided) for consumption as there is a concern that it may pose harm to the human body.

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