

# Development of Learning Materials on Fiqh of Alcohol and Khamr in Islamic and Science Perspective

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## Abstract

The law of alcohol and khamr are often equated in Islamic fiqh, even though they are both different in terms of substance and character. The purpose of this study was to test the scientific experimental approach between alcohol and khamr in Islamic religious education learning at the Junior High School 6 PGRI Denpasar, Bali. This experiment will have implications for changing students' perspectives on alcohol which has two fiqh laws, while khamr is certainly haram even though the substance contained in khamr is not alcohol. This study used an experiment with a comparison between the science experimental method class and the control class using the lecture method. The results of the validation of media experts, materials and teachers were 93% with perfect criteria. The pretest in the experimental class has a percentage of 72.5% and the experimental class is 68.5% in the control class. Posttest in the experimental class percentage of 87.25% of great criteria, while in the control class the value was not much different from the presentation in the experimental class 73. The difference between posttest in the experimental class and control class is 14.25%. Based on the results of the validation and pretest-posttest comparisons between classes, the experimental method is well applied to Islamic Religious Education learning.

**Keywords:** *Islamic Study, Fiqh, Alcohol and Khamr, Experiment Methods.*



## A. INTRODUCTION

Islamic education at PGRI 6 Denpasar junior high school is a subject for Muslim students in Bali, Indonesia. Islam is a minority religion in Bali, this fact makes students accustomed to being in an environment that serves non-halal food and drinks, especially Bali is one of the most famous provinces for world-class tourism which serves a lot of alcoholic beverages. This means that Islamic education should be able to explain alcohol and khamr both from an Islamic and scientific perspective. Assessment based on two different perspectives is important because since a long time ago the Muslim community in Indonesia, especially students at the PGRI 6 Junior High School, still equate the law of the prohibition of alcohol and khamr. In Islamic education learning, specifically regarding the law of halal-haram between alcohol and khamr, it is still generalized (Ahsan & Sumiyati, 2017). On the one hand,

such Islamic education has not yet used the scientific integration paradigm, even though the science-chemistry literacy in khamr material is still poorly understood (Abdullah, 2015). As a result, teachers and students have a narrow view of the law of alcohol so that they consider all types of alcohol to be haram (Fattah & Suhirman, 2019). A rigid view of products that contain alcohol causes doubts in the use of alcoholic products, such as in medicine, cosmetics and food (Mahmud, 2018).

This misunderstanding occurs because the Ulama are still debating the law of jurisprudence, halal and haram, by equating it with the intoxicating wine. The argument which becomes the strongest argument is "all foods that can be intoxicating are haram, including alcohol (Syed et al., 2018). In the Koran and hadith there are also many statements that all intoxicating substances are khamr (Khashan, 2016). As a result, there has been an anti-science attitude that rejects all types of food, drink, perfume and other objects or substances that contain alcohol (Jamaludin et al., 2011). In fact, many consumer and non-consumable products use various types of alcoholic substances, especially drugs (Rahem, 2018; Moghadam & Moradi, 2012). Alcohol is a substance that is widely used in various lines of the food and non-food industry (Irianto, 2013). Even Malaysia, has protected the halal food industry from alcohol contamination due to global consumption imports which are mostly done (Ahmad et al., 2018). This is done to maintain the tradition of the Prophet's sunnah with halal food that is sterile from khamr content (Radhiah & Nazirah, 2018). However, other countries take advantage of technological advances based on microbial bioprocessing to develop the halal food industry (Kurniadi, 2018).

Basically, pure alcohol is not a new substance and has been used since BC as a medicine and as a drink (Jamaludin et al., 2015). The use of alcohol as liquor causes most scholars to equate it with khamr and consider alcohol to be a haram substance (Ashar, 2015). Even in science, alcohol and khamr cannot be equated. because alcohol is a constituent substance in several types of khamr, not all khamr groups (Sarwat, 2014). Therefore the study of alcohol and khamr in the perspective of Islam and science, especially chemistry, is important as a way of proving that alcohol is different from khamr (MZ, 2019). Transdisciplinary studies between alcohol and khamr in the perspective of Islam and science (chemistry) educate directly about the effects of alcohol and khamr which are prohibited (Thayyarah, 2013; Mustapa, 2013).

Proving the difference between alcohol and khamr in Islamic education subject matter is applied by scientific experiments using halal alcohol and haram alcohol and reacting them to chicken meat and skin. According to Roestiyah, experimentation is a teaching method where students conduct an experiment about something, observe the process and write down the results of the experiment, and the results of these observations are conveyed to the class and evaluated by the teacher (Trianto, 2010). Experiments as science learning are appropriate laboratory-based learning strategies to increase student curiosity. Students become enthusiastic about studying Islamic education (Umah et al., 2014). In the perspective of neuroscience, experiences of science and religion experiments will be remembered in the long-term memory of students because learning is done by involving cognition, affection and psychomotor

as well (Suyadi, 2018; Suyadi, 2019). Rahmawati et al. (2014) said that learning science with experiments had a positive effect on student activeness based on the results of her pretest and posttest.

In this series of research, students will conduct simple experiments using an example that can be done in the classroom by using samples of some alcohol that is halal and khamr to students so that students can see the difference directly from the use of haram alcohol and halal alcohol. The learning experiment uses common everyday alcohol and khamr and chicken meat that is easy to find and affordable. This experimental proof increases creative power, accuracy and high curiosity. This research will have implications for a shift in the paradigm of learning Islamic education, which initially had minimal scientific literacy and still has a dichotomous paradigm to a scientific integrative Islamic education.

## **B. METHOD**

This research approach uses an experimental design, aims to prove that not all alcohol is haram and has different fiqh laws from khamr (Pratisti, 2018; Hastjarjo, 2011). Experimental methods are generally used in Natural Science subjects (Desstya, 2015; Subekti & Ariswan, 2016). Limited to scientific experimental research, it tends to ignore the spiritual-affective side of Islamic education. However, in this study the experimental method will be used in Islamic education subjects so that the cognition and affection (Islamic spiritual) are integrated in it. Abdullah calls this cross-methodological research as interdisciplinary, multidisciplinary and trans-disciplinary research (Oey et al., 2017). Suyadi has initiated a trans-disciplinary research model like this, especially in the fields of Islamic education and neuroscience. On this basis both (halal and haram alcohol) must be tested scientifically (Suyadi & Sutrisno, 2018; Suyadi & Widodo, 2019).

This research setting is PGRI 6 Junior High School Denpasar Bali, Indonesia in the subject of Islamic education. The research setting was chosen based on the students' daily environment alongside alcoholic products. This experiment is expected to equip students with the ability to distinguish between halal and haram alcohol and to avoid khamr.

Before conducting research on students, the first stage is observation, interviews and surveys regarding the level of understanding and knowledge of teachers and students about alcohol and khamr as well as seeing whether the facilities are adequate or not. Observations, interviews and surveys aim to find problems faced by 8th graders and teachers of Islamic Education at PGRI 6 Denpasar Junior High School regarding the matter of consuming halal food and drinks and staying away from what is haram in chapters 12 and 14 which are also research subjects and These results are also used as a means of collecting data with an interactive model (Subekti & Ariswan, 2017).

The second stage conducted a pretest on the experimental class and the control class. The third stage is the implementation of learning by experimenting with the experimental class. In the second stage, it describes the material for

conducting experiments, discussing with students and reaching learning conclusions. Stage four is the evaluation stage based on data collection in the second and third stages and then compares the final results of the experimental class and the control class. The tools and materials used in this fiqh learning experiment are as follows:

**Table 1. Specific Data of Column/Row**

No	Tool	Item	Size
1	Clear Glass	6 Piece	200 ml
2	Measuring Cup	1 Piece	50 ml
3	Tape	1 Piece	2 x 1 cm
4	Paper	6 Piece	1 x 0.5 cm
5	Scissor	1 Piece	-

**Table 2. Specific Data of Column/Row**

No	Material	Concentration	Size
1	Alcohol Halal		100 ml
	Stearyl Alcohol from brand lotion "W"	13%	50 ml
	Water of Tapai	3.1%	50 ml
2	Alcohol in Khamr		100 ml
	Denature ethanol from brand cologne "T"	95%	50 ml
	Vodka from brand "S"	40%	50 ml
3	Chicken Breast and Skin	-	6 x 3 gram

The experimental procedure in this study is as follows:

1. Prepare tools and materials.
2. Measure 50 ml of alcohol respectively.
3. Pour each measured alcohol into a glass.
4. Mark the glass with masking tape and paper that has the name of the type of alcohol written on it.
5. Put the chicken in a glass filled with alcohol until submerged
6. Observe and wait up to 240 minutes.
7. Make a conclusions.

The use of chicken meat and skin is assumed to be our body because 64% of chicken genes are similar to human genes (Hillier et al., 2014), stearyl alcohol and denatured alcohol (found in colognes) are alcohol products used in cosmetic mixtures such as soap, perfume, lotion and so on (Aplication, Data & Konis, 2007). Vodka and Air Tapai are easy drinks that we encounter everyday, vodka is widely used as a cooking ingredient as well as for tenderizing meat in non-halal restaurants. Experiments can provide insight into the state of our bodies before and after the use of halal alcohol and kharm alcohol.

The product was previously validated by experimental media experts, learning material experts and teachers before starting research (Widoyoko, 2012). Product evaluation is based on relevance, accuracy, completeness of the course, basic concepts of material and suitability of the presentation with the learning demands of 17 items. After the assessment, revisions were made before testing the experimental class on 8A with 10 students 10 questions and the control class towards 8B and 8C 10

students 10 questions. The results of the assessment obtained from expert validation were analyzed using category in tables 3.

**Table 3. Standart Value**

Range Score	Criteria
> 4,2 - 5,0	Perfect
> 3,4 - 4,2	Great
> 2,6 - 3,4	Sufficient
> 1,8 - 2,6	Less
1,0 - 1,8	Poor

**C. RESULT AND DISCUSSION**

This research was conducted at PGRI 6 Denpasar Junior High School with a sample of 10 students in class 8A, 7 girls and 3 boys as the experimental class and 8B and 8C classes with 4 and 6 students, 5 boys and 5 girls. In the experimental class students will do a pretest then the learning activities will be continued with experimental media and end with a post-test with the same weight as the pretest but with a different question. Whereas for the control class did the pretest then continued with learning as usual with the lecture method and ended with the posttest. Both classes were given the same pretest and posttest questions with 10 questions each. Figures 1a and 1b show the process of the science experiment in question.



**Figure 1a. Halal Alcohol**



**Figure 1b. Haram Alcohol**



**Figure 2. The Different Visual of Halal and Haram Alcohol**

Figures 1a and 1b above show the process of science experiments using halal and haram alcohol. When chicken meat/skin is exposed to halal alcohol (1a) the only changes occur in the color and smell of the meat. In tapai, the texture of the meat does not change, the color of the meat follows the color of the tapai water and the smell of the meat which initially smells of raw meat changes to a sweet one due to the ethanol and glucose content that occurs due to the reaction of starch breakdown by yeast in making tapai (Yulianti, 2014). In the lotion, the texture of the meat changes to be softer and more moist, even though the remaining lotion is stuck on it, this happens because of the content of stearyl alcohol (fat alcohol) which acts as an emulsifier (maintaining the stability of fat and water) (Yunilawati, Yemitra, & Komalasari, 2011; Schambil, Jost, & Schwuger, 1987). The color change also becomes paler as a result of the body whitening (licorice extract) and vitamin E. The addition of perfume in the lotion also affects the smell of the meat and chicken skin, so it doesn't smell like raw meat.

Conversely, when chicken skin meat is exposed to haram alcohol (1b), there is a clear change in color, texture, bones, odor and there is protein deposition. The alcohol content contained in vodka is ethanol and its derivative esters such as ethyl acetate and ethyl lactate (Marku et al., 2005). In meat with vodka, the color turns pale gray due to the hygroscopic nature (water extracting) of ethanol which occurs when the ethanol concentration is more than 5%, the texture of the meat is like meat that is boiled for hours becomes less dense and detaches from the bones due to the nature of ethanol (Torres-jimenez, 2011). Accelerate the thermochemical decomposition of proteins, fats and carbohydrates (Viegas et al., 2014; Hall & Spencer, 1964). The bones in the chicken meat become brittle while the smell of change that occurs, the fishy odor of the meat turns into a pungent smell of ethanol. The bone brittleness that occurs is caused by ethanol reacting with osteoblasts (bone building cells) so that bones become more brittle due to calcium loss (Andrade et al., 2018). The stinging odor of ethanol in meat is due to the high concentration of alcohol and the volatile nature of ethanol, because the decomposition of the fishy odor of the blood is also covered by the pungent odor of ethanol (Bohari, 1988). In cologne, the changes that occur as a whole are similar to vodka because the alcohol content is denatured alcohol (rubbing alcohol) (Deborah et al., 2015). Denatured alcohol is ethanol which has additives. The difference between the vodka and cologne experiments was only in the texture, color and smell (New Zealand Government, 2017).

If the vodka texture becomes ripe and brittle, it is different from cologne, the texture of the meat becomes dense and chewy like a dense rubber ball while on the skin the texture is hard like rubber and rough. This happened because the cologne contained castrol oil and aloe vera and assisted with propylene glycol alcohol could facilitate absorption into the skin and meat, thereby slowing the trans-esterification process which led to thermochemical decomposition even though the alcohol concentration was 95% (Hughes, 2014). The discoloration in cologne occurs because the alcohol depletes the vitamin A found in the flesh and skin, thereby preventing the nutrients from minerals which result in pale flesh skin and dry, wrinkled skin

(Neuman et al., 2002). The smell of cologne is very strong due to the high concentration of rubber alcohol and the perfume content. This experimental process is in accordance with the standard of experimentation in scientific research (Desstya, 2015; Subekti & Ariswan, 2016; Hastjarjo, 2014).

Based on Figures 1a, 1b, and 2, there is a definite difference between halal and haram alcohol. Therefore, if we consume and use khamr, the body's reaction will look as shown in Figure 1b. The effect of alcohol use on the haram can threaten physical and mental health, as researched by Razak & Hashi (2016). Conversely, when a person consumes and uses halal alcoholic substances it does not affect the body and soul functions and can even provide benefits to the body. Halal substances will not endanger the health concerned as research conducted by Ahmad et al. (2018). The design of this experimental research has been validated by experts, especially Islamic Science and Studies, whose results are as shown in Table 4.

**Table 4. Validation from Expert**

No.	Validator	Score
1.	Experiment	84
2.	Fiqh	73
3.	Islamic Education	80
<b>Total Score</b>		<b>237</b>
<b>Average Score</b>		<b>4,65</b>
<b>Percentage</b>		<b>93%</b>

In Table 4 the total score assessment is 237 then an average of 4.65 criteria is perfect and the percentage shows 93% by media experts, material experts and teachers. Based on these values, the experiment and research are considered feasible to be used as a learning medium. After the validation process, the value was continued by conducting a pretest and posttest to the experimental class and control class and obtained data as in tables 5 and 6.

**Table 5. Pretest Data from Experiment and Control Class**

Experiment Class		Control Class	
8A		8B and 8C	
Student	Score	Student	Score
AB	27	AC	31
AR	33	BS	28
FH	25	BA	25
GS	34	CP	26
GT	36	DD	32
IJ	29	DT	32
JL	27	ES	23
KA	23	KH	21
LM	25	RK	25
PD	31	TA	34

<b>Total Score</b>	<b>290</b>	<b>Total Score</b>	<b>274</b>
<b>Average Score</b>	<b>2.9</b>	<b>Average Score</b>	<b>2.74</b>
<b>Percentage</b>	<b>72.5%</b>	<b>Percentage</b>	<b>71.5%</b>

In table 5, the results of the pretest in the experimental class total score of 290 with an average of 2.9 and a presentation of 72.5% so that the criteria are sufficient, while in the control class the total score is smaller than the experimental class with a slight difference in the score of 270 with an average of 2.74 and 71.5% into the sufficient criteria. Based on this value, the difference between the total score is 20, 1% percentage difference is superior to the experimental class, but seen from the criteria of the experimental class and the control class it is in sufficient criteria so that the students' abilities and knowledge are almost the same. After the pretest the experimental class used experimental media as a learning tool while the control class used the lecture method. The results of the post test can be seen in table 6.

**Table 6. Specific data of Column/Row**

<b>Experiment Class</b>		<b>Control Class</b>	
<b>8A</b>		<b>8B and 8C</b>	
<b>Student</b>	<b>Score</b>	<b>Student</b>	<b>Score</b>
AB	35	AC	33
AR	38	BS	24
FH	33	BA	27
GS	38	CP	28
GT	40	DD	30
IJ	34	DT	33
JL	36	ES	32
KA	29	KH	23
LM	29	RK	23
PD	37	TA	30
<b>Total Score</b>	<b>349</b>	<b>Total Score</b>	<b>280</b>
<b>Average Score</b>	<b>3.49</b>	<b>Average Score</b>	<b>2.8</b>
<b>Percentage</b>	<b>87.25%</b>	<b>Percentage</b>	<b>73%</b>

In table 6 the experimental class got a total score of 349 with an average of 3.94 and a presentation of 87.25%, while the control class got a total score of 280 with an average of 2.8 and a percentage of 73%. The results of the posttest in the experimental class were much different from the results of the pretest that had been done before. There was an increase of 14.75% while in the control class the increase was only 1.5% and the difference between the post-test results of the experimental class and the control class was 14.25%.

## D. CONCLUSION

The results of the analysis of expert validation and research at the PGRI 6 Denpasar Junior High School in the experimental class and control class increased the value in the experimental class after being tested with experimental media. The results of the validation of experimental, fiqh and Islamic education experts get an average value of 4.65 and a percentage of 93% with Perfect criteria. The pretest in the experimental class averaged 2.9 with a percentage of 72.5% sufficient criteria, not much different from the experimental class, the control class got an average value of 2.74 with a presentation of 68.5%, sufficient criteria. The posttest in the experimental class averaged 3.94 with a percentage of 87.25% great criteria, while in the control class the score was not much different from the experimental class with an average of 2.8 and 73 presentations. 14.25%. Subsequent research with spread test so as to be able to determine the effectiveness of the product being developed.

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