






The Effect of Herbal Medicine Mixture and Indigestion to Karapan Sapi in Sampang Regency in 2021

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ABSTRACT

This study aims to find out the effect of giving mixed ingredients on indigestion in Karapan Sapi in Sampang Regency in 2021. This research began in January 2021 to February 2021 in Sampang Regency, East Java. The sample used in this study is a Karapan Sapi that giving mixes ingredients (plum wine, wine fermentation, or beer) into its drink in Sampang Regency. The tool used in this study is a questionnaire conducting interviews with study respondents, namely 20 owners of Karapan Sapi. Data were grouped by mixed ingredients they used and the dose of the mixed ingredients and then analyzed using the Chi-Square method to determine the effect of the mixture and the dose of the ingredients with indigestion. The results of the analysis showed that the mixed ingredients showed a noticeable influence ($p < 0.05$). The results of the analysis of the dose of the ingredients also showed that the dose of the material showed a real influence ($p < 0.05$). Based on the results of the analysis, it can be concluded that the provision of mixed ingredients and their doses affect the indigestion in Karapan Sapi in Sampang Regency.

Keywords: Indigestion, Karapan Sapi, mixed ingredients, Sampang

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Introduction

Karapan Sapi is a unique tradition originating from the island of Madura. Karapan Sapi is a cattle racing competition, and the cattle used in this competition are male Madurese cattle, which are competed in running speed and consist of two bulls in pairs over a certain distance (Risqina *et al.*, 2014). Efforts that can be made to get the title of winner require maximum effort from the owner of the Karapan Sapi, starting from preparation to implementation. The maintenance and preparation costs incurred to get a tough and winning cow are

very large. Owners or keepers of Karapan Sapi use a mixture of herbal medicines consumed by Karapan Sapi, which are believed by the cattle owners to provide additional energy to the cattle and also have a warming effect on the body of the Karapan Sapi. The ingredients usually used by Karapan Sapi owners are palm wine, fermented wine, or beer. Tuak is a fermented drink made from beverage ingredients or fruit that contains sugar and comes from the flower water of sugar palm trees and lontar or siwalan (Wijaya *et al.*, 2024).

Tuak contains certain sugars, namely sucrose, glucose, fructose, and carbohydrates, and has an average acidity degree of 6-7 and smells good (Gunam *et al.*, 2022). During standing, the fermentation process will continue, and the sucrose in the wine will be converted into alcohol and then into acetic acid (Saranraj *et al.*, 2017). Tuak has a high alcohol content; the longer it is stored at room temperature, the higher the alcohol content is (Ningsih and Sumiatin, 2020).

Fermented wine is an alcoholic drink that comes from the fermentation of grapes (*Vitis vinifera*) commonly called wine (Ezemba *et al.*, 2022). Originating from Mesopotamia, wine then spread to various countries, including Indonesia. Still relatively new, wine is now increasingly popular and sought after by many Indonesians. Grapes that have been crushed are called musts, which consist of 85-95% juice, 5-12% skin, and 0-4% seeds (Guaita and Bosso, 2019). The pH value of fermented wine on the market is in the range of 3.5-3.6 (Vilela, 2019). Apart from fermenting wine, Karapan Sapi owners also mix beer in their mixture. Beer is an alcoholic drink made from fermented wheat starch, corn, and rice and flavored with fruit (Holt *et al.*, 2019). Beer contains around 3.8% alcohol, ranging from 3-7% (Okaru and Lachenmeier, 2022). The average pH value of beer is 4.1-4.3 (Yu *et al.*, 2019).

Feed ingredients made by fermentation can also increase the acid content. The decrease in rumen pH caused by acidic feed ingredients causes rumen microbes that cannot tolerate acidic conditions to die, so metabolism is disturbed, and this can cause indigestion in cows (Fu *et al.*, 2022). Indigestion can also occur due to sudden changes in feed, giving high amounts of feed fiber and not balancing it with sufficient fluids (de Oliveira and Burini, 2011).

Based on the background mentioned above, it is necessary to conduct research on the effect of administering herbal medicine mixtures along with the dosage given by ingestion because in the herbal medicine mixture, there are several ingredients that should not be consumed by animals.

Materials and methods

Research design

This research was carried out in Sampang Regency, East Java Province, starting from January 2021 to February 2021. The research was carried out using observational research methods based on recording data results. The data taken is data obtained

from interviews with the owners of Karapan Sapi in Sampang Regency in 2021. The samples in this study were Karapan Sapi, who mixed herbal medicine ingredients into their herbal medicines and were domiciled in Sampang Regency. The sample size that will be used is 20 people who own Karapan Sapi and use a mixture of herbal medicine.

Research procedure

The research began by looking for research respondents, namely 20 Karapan Sapi owners. The next stage is to conduct interviews with research respondents. Research respondents were interviewed with questions provided in the research questionnaire. The data obtained from the interview was then analyzed using a data analysis application.

Data analysis

The research data consists of the mixture given, the dosage of the mixture, and the indigestion experience in Karapan Sapi. The data obtained was then analyzed using the Chi-Square method to obtain the relationship between the ingredients of the herbal mixture and the dose given by indigestion using the Statistics and Service Solution (SPSS) program version 26.

Result

Ingredients mixed for consumption by Karapan Sapi

Based on data obtained from interviews with 20 Karapan Sapi owners in Sampang Regency, there are 17 Karapan Sapi owners who mix certain ingredients into the herbal medicines consumed by Karapan Sapi, and there are 3 Karapan Sapi owners who do not mix certain ingredients into their herbal

Table 1. List of ingredients mixed for consumption by Karapan Cattle in Sampang Regency

Mixed ingredients	Number of owners	Percentage
0 mix	3	15%
Grape fermentation	11	55%
Beer	4	20%
Palm wine	2	10%
Total	20%	100%

Based on table 1, the ingredient most frequently used by breeders is fermented wine with a percentage of 55% of the total 20 Karapan Sapi owners who mix certain ingredients into the herbal medicines consumed by the Karapan Sapi.

Effect of giving mixed herbal ingredients with indigestion

The results of the research after carrying out the Chi-Square test obtained a p-value of 0.001 so that the p-value <0.05. Based on the test results, it can be found that there is a significant relationship between mixed ingredients and indigestion that occurred in Karapan Sapi in Sampang Regency in 2021, as in Table 2.

Table 2. Results of analysis of the relationship between herbal medicine mixtures and indigestion

Ingredients	Indigestion experience		Total
	Yes	No	
Don't mix	0 (0%)	3 (15%)	
< 100 ml	11 (55%)	0 (0%)	
100 - 200	4 (20%)	0 (0%)	
> 500 ml	2 (10%)	0 (0%)	
Total	17 (85%)	3 (15%)	20 (100%)

Effect of dosage of herbal medicine mixture with indigestion

The results of the research after carrying out the Chi-Square test obtained a p-value of 0.001 so that the p-value <0.05. Based on the test results, it can be found that there is a significant relationship between the dosage of herbal mixture ingredients and the indigestion that occurred in Karapan Sapi in Sampang Regency in 2021, as in Table 3.

Table 3. Results of analysis of dosage of herbal medicine mixtures with indigestion

Ingredients	Indigestion experience		Total
	Yes	No	
Don't mix	0 (0%)	3 (15%)	
< 100 ml	5 (25%)	0 (0%)	
100 - 200	8 (40%)	0 (0%)	
> 500 ml	4 (20%)	0 (0%)	
Total	17 (85%)	3 (15%)	20 (100%)

Discussion

Effect of giving a mixture of herbal medicine and indigestion to Karapan Sapi

Interviews conducted with 20 Karapan Sapi owners in Sampang Regency found that the mixture used by Karapan Sapi owners was palm wine, fermented wine, and beer. The three owners of Karapan Sapi do not mix these ingredients because they already use natural ingredients to mix their Karapan Sapi herbal medicines, such as brown sugar and free-range chicken eggs. The grape fermentation mixture was used by eleven respondents on the grounds that the grape fermentation mixture was easy

to obtain. Krieger-Weber *et al.* (2020) explained that fermented grapes on the market contain 8-15% alcohol and have an average pH of 3.5-3.6, which shows that grape fermentation is acidic. Beer was used in the herbal mixture by 4 of the 20 research respondents. Humia *et al.* (2019) explained that the average pH of beer is 4.1-4.3, and this also shows that beer is acidic with an alcohol content of 3-9% by volume. The alcohol content of palm wine is relatively low, namely around 3-4% and cannot be stored for a long time (Nneamaka, 2019). The sap water that has just been taken from the tree has a neutral pH of around 7; however, due to environmental influences and fermentation, the sap water is contaminated, thereby reducing the pH value to 5.34, and the sweet taste of the sap changes to sour (Gunawan *et al.*, 2020).

Based on statistical analysis, the effect of giving mixed ingredients on the incidence of indigestion in Karapan Sapi has a significance value of 0.001. This shows that the mixture given to Karapan Sapi shows a relationship between the herbal medicine mixture and the indigestion case. There are several factors that influence the growth of the microbial population in the rumen, including temperature, gas composition, osmotic and ionic influences, rumen pH, availability of nutrients and fluid outflow or entry into the rumen (Ryu *et al.*, 2022). This mixture is classified as acidic because it has a pH value <7. An acidic atmosphere can inhibit the growth of rumen microbes and disrupt metabolism in the rumen. Metabolism in the rumen is disturbed, resulting in rumen hypomotility, decreased rumination, and decreased saliva production so that brooms experience anorexia, vitamin B production decreases, and nerve and muscle disorders occur (Fu *et al.*, 2022).

Effect of dosage of herbal medicine mixture with indigestion on Karapan Sapi

Based on statistical analysis, the effect of the number of doses given with indigestion on karapan Sapi has a significance value of 0.001. This shows that the dosage of mixed ingredients given to Karapan Sapi shows a relationship between the dosage of mixed ingredients and indigestion. The influence of the dose given to Karapan Sapi is due to the frequency and amount of the dose given to these ingredients. These ingredients are given in varying amounts. The number of doses is given according to the ability of the Karapan Sapi. Breeders will not increase the dosage if they feel that their karapan Sapi are no longer able to consume the mixture.

The amount of mixed ingredients given varies. Of the 20 respondents interviewed, there were around eight people who gave a dose of 100-200 ml. This amount is given continuously every day as herbal medicine to give strength to the Karapan Sapi so that they give the best performance during the Karapan Sapi, especially if the race day is getting closer. Accumulation of mixed ingredients that have been digested in excessive amounts can physically disrupt rumen function for 24-48 hours (Humer *et al.*, 2018). For ruminant livestock, the activity of rumen microbes plays a very vital role. Rumen environmental factors are very controlling in supporting the growth and life of rumen microbes, such as maintaining the pH in the rumen to remain at a neutral condition (6.2-6.8), thereby stabilizing the amount of fluid and ions concentration in the rumen and continuing to support life in the rumen (Perez *et al.*, 2024).

Conclusion

The administration of the herbal medicine mixture is related to the indigestion that occurred in Karapan Sapi in Sampang Regency in 2021. The dosage of the herbal medicine mixture is related to the indigestion that occurred in Karapan Sapi in Sampang Regency in 2021.

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