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Combination Therapy of Guajava Leaf Powder (*Psidium Guajava L*) and Turmeric Powder (*Curcuma Domestica Val*) to Cure Diarrhea in Sheep

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A B S T R A C T

This study aims to determine the therapeutic effect of guava leaf powder and turmeric powder on the healing of diarrhea in sheep. This study used a completely randomized design (CRD) with four treatments, each consisting of three repetitions. The result of the ANOVA analysis was a significant difference of 0.007 (P<0.01) on Day 3 compared to Day 1 and Day 2. Duncan's further test was that P0 was not significantly different from P1 but significantly different from P2 and P3. P1 was not significantly different from P0 and P2 but significantly different from P3. P2 was significantly different from P0 but not significantly different from P1 and P3, while P3 with P0 and P1 showed significantly different but not significantly different from P2.

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INTRODUCTION

In Indonesia, sheep farming has an up-and-coming prospect because of its easy maintenance system and many benefits obtained. Sheep, including small livestock, can be utilized as a source of animal protein because they produce meat. In addition, goats also have leather that can be used as raw material for tanning leather and dung as raw material for composting. and their feces as raw material for composting (Sukoco *et al.,* 2022). Raising sheep can be done extensively, semi-intensively (combination), and intensively. According to Kahar (2014), raising sheep that are kept intensively is a maintenance system fed in cages, namely grass, concentrates, and katul, while feces are processed into fertilizer so they can be sold. Furthermore, Aswar (2014) states that semi-intensive maintenance, receiving feed by grazing during the day so that the feed is not sorted properly, and providing additional feed, then put into the cage again in the evening. In addition to the type of sheep rearing, other factors influencing the success of sheep breeding are paying attention to seeds, feed, cages, reproduction, and health.

The health factor is essential because it will affect the sheep business by paying attention to livestock health properly and conducting periodic checks to minimize disease attacks. One of the diseases that commonly attack sheep is digestive disorders such as diarrhea. Diarrhea is a disorder of food digestion, a condition where livestock excretes more than average amounts of feces thinner than standard feces size. Diarrhea or loose stools are common in ruminants. Diarrhea causes a lot of body fluids to leave the body, resulting in a lack of fluids. Diarrhea in livestock can have bad consequences if the handling is not appropriate and slow. There are several causes of diarrhea in ruminants, namely infectious and non-infectious factors (Dinas Peternakan Kabupaten Lebak, 2019).

Handling diarrhea in sheep can be done by giving chemical or herbal medicines that are readily available to the general public. One of the plants often used as herbal medicines by the community is guava leaves. Farmers use guava leaves to treat diarrhea in both humans and animals. The flavonoids and tannins in guava leaves have antidiarrhoeal properties (Kumalaningsih, 2006). Tannin content in guava leaves is 9% (Sari et al., 2021). In addition to guava leaves, turmeric contains curcumin and tannin, which can have astringent properties (relieve diarrhea) and be anti-bacterial (Linta et al., 2020).

LITERATUR REVIEW

In Indonesia, sheep farming has an up-and-coming prospect because of its easy maintenance system and many benefits obtained. Sheep, including small livestock, can be utilized as a source of animal protein because they produce meat. In addition, goats also have leather that can be used as raw material for tanning leather and dung as raw material for composting. and their feces as raw material for composting (Sukoco *et al.,* 2022).

METHODOLOGY

This research was conducted from 14 January 2023 to 15 February 2023 at the Animal Health Laboratory and Mr Eko Dimas' sheep farm in Muntilan District, Magelang Regency. This study used a completely randomized design (CRD) with four treatments, each consisting of three replicates. The treatments used in the therapeutic process combine guava leaf powder and turmeric to heal diarrhea in sheep with different doses in administration. Guava leaves and turmeric are processed into powder and then put in capsules in a ratio of 1:1 and then tested on 12 sheep with P0 treatment as a control on three sheep and nine sheep for P1, P2, and P3 treatments with different doses (400 mg/kg BW, 500 mg/kg BW, 600 mg/kg BW). Administration by oral means according to the dose by giving twice a day for three consecutive days. Administration is done every morning and evening. Parameters assessed were frequency of defecation, consistency, and color of sheep feces.

a. The color is assessed by sheep feces using the sense of sight.
b. The consistency of sheep feces is assessed using the senses of sight and touch.
c. The frequency of defecation is assessed by observing how often diarrhoeal sheep excrete their feces daily.

Tools and Materials

The tools used in this study are digital scales (kg), oven/dryer, container, pan, capsule, knife, capsule filler, digital scales (mg), tissue, mask, gloves, alcohol, and blender. The materials used in this study were 12 sheep, guava leaves, and turmeric.

Data analysis

The data analysis performed was descriptive analysis, which describes changes in color, consistency, and frequency of defecation before and after combined therapy of guava leaf powder and turmeric powder. The results of the combined treatment of guava leaf powder and turmeric powder on sheep diarrhea were analyzed using ANOVA statistical analysis and Duncan's further test after scoring changes in healing:

1 = Yellow Stool, liquid Stool, and frequency of defecation more than ten times a day.
2 = Brownish yellow feces, liquid and slightly lumpy feces, and frequency of defecation 7 to 9 times a day
3 = The Stool is brown, the Stool is lumpy, and the frequency of defecation is 4 to 6 times a day
4 = Blackish brown Stool, granular Stool, and defecation frequency 1 to 3 times a day

RESULTS AND DISCUSSION

A. Sample Observation Results Before Curing

Sample examination was conducted at the research site, namely at the farm of a resident named Mr Eko, Muntilan District, Magelang Regency. The samples examined were 12 sheep that experienced symptoms of diarrhea. The method of reviewing samples is by observing the physical characteristics of sheep that experience symptoms of diarrhea. Based on the livestock that have been observed, they have characteristics or symptoms of diarrhea, such as the color of the feces released being yellow, the consistency of the feces being watery, and the defecation frequency of the sheep being ten times per day. This is to the statement of Muzadin et al. (2018), which states that diarrhea is a clinical symptom of digestive (intestinal) disorders characterized by an increase in the frequency of defecation more than usual and repeatedly accompanied by changes in the shape and consistency of the stool to become mushy or liquid.

B. Sample Observation Results After Curing

The results of observations of recovery in sheep experiencing symptoms of diarrhea that have been given four treatments, namely P0 (Without being given a combination of guava leaf powder and turmeric), P1 (Giving a combination of guava leaf powder and turmeric 400 mg/kg each), P2 (Giving a combination of guava leaf powder and turmeric 500 mg/kg each), and P3 (Giving a combination of guava leaf powder and turmeric 600 mg/kg each). Based on the study results, the P3 treatment had the best results compared to the P0, P1, and P3 treatments. The following is the data on the healing score of sheep after treatment.

Table 2. Observation Results

Treatment	Sample	Healing Scoring	Avarage
	P0U1	1	
P0	P0U2	1	1,00000[a]
	P0U3	1	
	P1U1	2	
P1	P1U2	2	1,87867[ab]
	P1U3	2	
	P2U1	2	
P2	P2U2	1	2,31800[bc]
	P2U3	2	
P3	P3U1	3	3,16600[a]

Source : Primary Data

Table 1 states that the average of each treatment has a better increase in the level of healing from P0 to P3, namely 1.00000 to 3.16600. The P3 average of 3.16600 means a score of 3, meaning that the cattle have brown feces and clumpy feces, and the frequency of defecation is 4 to 6 times a day. Based on the results of ANOVA analysis of variance, it was stated that there was a genuine difference of 0.007 ($P < 0.01$) on Day 3 compared to Day 1 and Day 2, which did not experience an actual or insignificant difference. The results that showed very significant differences were carried out with Duncan's Multiple Range Test. The results stated that P0 was not significantly different from P1 but substantially different from P2 and P3. P1 is not significantly different from P0 and P2 but substantially different from P3. P2 was significantly different from P0 but not very different from P1 and P3, while P3 with P0 and P1 showed significantly different but not significantly different from P2.

These results show that P3 is better than the other treatments, namely by giving a combination of guava leaf powder and turmeric 600 mg/kg each. The content influences this in guava leaves and turmeric and the dosing rate given to livestock. In line with Fratiwi statement (2015), guava leaves contain flavonoids, essential oils, and alkaloids. This is by the opinion of Vijayakumar et al. (2015) that the flavonoid compounds contained in guava leaves are tannins (17.4%) and phenolics (575.3 mg/g). She is supported by the presence of tannin compounds in the leaves of guava plants which are used as active components that provide antidiarrhoeal effects (Kumalaningsih, 2006). This is based on the statement of Sunani and Hendriani (2023) that tannins can be used as an antidiarrhoeal. In addition, Sinaga (2007) also states that the active tannin in a plant can be used as a medicine to treat diarrhea.

CONCLUSIONS AND RECOMENDATION

Combination therapy of guava leaf powder and turmeric powder provides a healing effect on sheep diarrhea. Based on the study's results, it was found that the P3 treatment gave better results than the other treatments, namely by providing a combination of guava leaf powder and turmeric 600 mg/kg each.

ADVANCED RESEARCH

It Is Necessary To Conduct Further Research On Other Types Of Ruminants. In Addition, It Is Also Required To Conduct Further Research To Determine The Lethal Dose In The Use Of A Combination Therapy Of Guajava Leaf Powder (Psidium Guajava L) And Tumeric Powder (*Curcuma Domestica Val*).

REFERENCES

Dinas Peternakan Kabupaten Lebak. 2019. Penangan Diare (Mencret) Pada Ternak Ruminansia. https://disnakeswan.lebakkab.go.id/penangan-diare-mencret-pada-ternak-ruminansia/ (diakses pada 10 Desember 2023)

Fratiwi, Y. 2015. The Potensial of Guava Leaf (Psidium guajava L.) for Diarrhea. *Journal of Majority*. 4(1): 113.

Kahar. 2014. Perbandingan Dimensi Tubuh Kambing Kacang yang Dipelihara Secara Intensif dan Semi Intensif. Laporan hasil penelitian. Fakultas Peternakan. Universitas Hasanuddin.

Kumalaningsih S. 2006. Antioksidan Alami-Penangkal Radikal Bebas, Sumber, Manfaat, Cara Penyediaan dan Pengolahan. Cetakan Pertama, Surabaya : *Trubus Agrisarana*.

Kumar, V. Robbins, S.L., dan Coertran R.S., 2017. Buku ajar Patologi (Edisi ke-7). Terjemahan Oleh: Braham U.P. EGC. Jakarta, Indonesia: 635-636.

Linta M, Winda S, Pala T. 2020. Uji Efek Antidiare Ekstrak Rimpang Kunyit Curcuma domestica val.) pada Mencit Jantan. *Jurnal Penelitian Farmasi Herbal*. 2:15 - 21.

Sari, F., Kurniaty, I., Susanty. 2021. Aktivitas Antioksidan Ekstrak Daun Jambu Biji (Psidium Guajava L) Sebagai Zat Tambah Pembuatan Sabun Cair. *Jurnal Konversi*. 10(01): 1-7

Sinaga, S. 2007. Using of Guava (Psidium Guajava) Leaf Meal As anti Diarhea On Growth of Starter Pig Period. Jurnal Ilmu Ternak. 7(2): 161-164

Sukoco, H., Salmin, Fahrodi, D.U., Said, N.S., Agustina., Marsudi., Siswanto, F.M., Cahyani, A.P., Timur, N. P. V. T. 2022. Prevalensi Penyakit Mastitis pada Ternak Kambing di Kabupaten Majene, Sulawesi Barat. *Jurnal Triton.* 13(1): 30-36

Sunani, S and Hendriani, R. Review Article: Classification and Pharmacological Activities of Bioactive Tannins. *Indonesian Journal of Biological Pharmacy*. 3(2): 130-136

Vijayakumar, A. Vijaya Anand, R. manikandan. 2015. In vitro Antioxidant activity of Ethanolic Extract of Psidium Guajava leaves. *Jurnal of Research Studies in Biosciences*. Vol. 3 (2). Hal 145-149.