



PROTEKSI ISI LAPORAN KEMAJUAN PENELITIAN

Dilarang menyalin, menyimpan, memperbanyak sebagian atau seluruh isi laporan ini dalam bentuk apapun kecuali oleh peneliti dan pengelola administrasi penelitian

LAPORAN KEMAJUAN PENELITIAN TAHUN TUNGGAL

ID Proposal: 6b57caf4-95fc-4692-a9b6-bde9ab746584
Laporan Kemajuan Penelitian: tahun ke-1 dari 1 tahun

1. IDENTITAS PENELITIAN

A. JUDUL PENELITIAN

Pemanfaatan Limbah Ikan Termodifikasi Sebagai Pakan Multiguna Pada Itik Alabio dalam Meningkatkan Kandungan Omega 3 Pada Telur dan Menurunkan Kolesterol Daging.

B. BIDANG, TEMA, TOPIK, DAN RUMPUN BIDANG ILMU

Bidang Fokus RIRN / Bidang Unggulan Perguruan Tinggi	Tema	Topik (jika ada)	Rumpun Bidang Ilmu
Pangan	Teknologi pascapanen dan rekayasa teknologi pengolahan pangan	Diversifikasi dan hilirisasi produk pertanian, perkebunan, peternakan, dan perikanan	Nutrisi dan Makanan Ternak

C. KATEGORI, SKEMA, SBK, TARGET TKT DAN LAMA PENELITIAN

Kategori (Kompetitif Nasional/ Desentralisasi/ Penugasan)	Skema Penelitian	Strata (Dasar/ Terapan/ Pengembangan)	SBK (Dasar, Terapan, Pengembangan)	Target Akhir TKT	Lama Penelitian (Tahun)
Penelitian Kompetitif Nasional	Penelitian Tesis Magister	SBK Riset Dasar	SBK Riset Dasar	3	1

2. IDENTITAS PENGUSUL

Nama, Peran	Perguruan Tinggi/ Institusi	Program Studi/ Bagian	Bidang Tugas	ID Sinta	H-Index
ACHMAD JAELANI Ketua Pengusul	Universitas Islam Kalimantan Muhammad Arsyad Al Banjari Banjarmasin	Peternakan		5972578	3
Taupikurrahman, S.Pt Mahasiswa Bimbingan 1	Fakultas Pertanian Universitas Islam Kalimantan Muhammad Arsyad Al Banjari	-	Melakukan Fermentasi Limbah Ikan dengan Kapang Varietas Lokal, Uji Kolesterol, Pengolahan Data	0	0
Dr TINTIN ROSTINI S.Pt, M.P Dosen Pembimbing Anggota 1	Universitas Islam Kalimantan Muhammad Arsyad Al Banjari Banjarmasin	Peternakan	Melakukan analisis dan pengujian Omega 3 dan Kolesterol, Pengolahan data, Penyusunan draft publikasi,	5974986	1

3. MITRA KERJASAMA PENELITIAN (JIKA ADA)

Pelaksanaan penelitian dapat melibatkan mitra kerjasama, yaitu mitra kerjasama dalam melaksanakan penelitian, mitra sebagai calon pengguna hasil penelitian, atau mitra investor

Mitra	Nama Mitra
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4. LUARAN DAN TARGET CAPAIAN

Luaran Wajib

Tahun Luaran	Jenis Luaran	Status target capaian (<i>accepted, published, terdaftar atau granted, atau status lainnya</i>)	Keterangan (<i>url dan nama jurnal, penerbit, url paten, keterangan sejenis lainnya</i>)
1	Artikel di Jurnal Internasional Terindeks di Pengindeks Bereputasi	Accepted	Pakistan Journal of Nutrition (Q3)

Luaran Tambahan

Tahun Luaran	Jenis Luaran	Status target capaian (<i>accepted, published, terdaftar atau granted, atau status lainnya</i>)	Keterangan (<i>url dan nama jurnal, penerbit, url paten, keterangan sejenis lainnya</i>)
1	Artikel pada Conference/Seminar Internasional	Terbit dalam Prosiding	International Conference of Agricultural and Food Science (ICOFA)

5. ANGGARAN

Rencana anggaran biaya penelitian mengacu pada PMK yang berlaku dengan besaran minimum dan maksimum sebagaimana diatur pada buku Panduan Penelitian dan Pengabdian kepada Masyarakat Edisi 13 Revisi.

Total RAB 1 Tahun Rp. 39,137,000

Tahun 1 Total Rp. 39,137,000

Jenis Pembelanjaan	Item	Satuan	Vol.	Biaya Satuan	Total
Analisis Data	Biaya analisis sampel	Unit	1	5,725,000	5,725,000
Analisis Data	Tiket	OK (kali)	1	1,250,000	1,250,000
Analisis Data	Penginapan	OH	1	350,000	350,000
Analisis Data	HR Pengolah Data	P (penelitian)	2	200,000	400,000
Analisis Data	Uang Harian	OH	2	200,000	400,000
Analisis Data	HR Sekretariat/Administrasi Peneliti	OB	3	300,000	900,000
Analisis Data	Transport Lokal	OK (kali)	3	600,000	1,800,000
Bahan	ATK	Paket	1	650,000	650,000
Bahan	Bahan Penelitian (Habis Pakai)	Unit	1	6,587,000	6,587,000
Pelaporan, Luaran Wajib, dan Luaran Tambahan	Biaya seminar internasional	Paket	1	2,750,000	2,750,000
Pelaporan, Luaran Wajib, dan Luaran Tambahan	Publikasi artikel di Jurnal Internasional	Paket	1	3,750,000	3,750,000
Pengumpulan Data	HR Pembantu Peneliti	OJ	1	200,000	200,000
Pengumpulan Data	HR Pembantu Lapangan	OH	1	100,000	100,000
Pengumpulan Data	Transport	OK (kali)	3	100,000	300,000
Pengumpulan Data	Uang Harian	OH	3	100,000	300,000
Pengumpulan Data	Uang harian rapat di dalam kantor	OH	3	100,000	300,000
Pengumpulan Data	Uang harian rapat di luar kantor	OH	5	75,000	375,000
Pengumpulan Data	Biaya konsumsi	OH	5	75,000	375,000

Jenis Pembelanjaan	Item	Satuan	Vol.	Biaya Satuan	Total
Pengumpulan Data	FGD persiapan penelitian	Paket	6	75,000	450,000
Sewa Peralatan	Peralatan penelitian	Unit	1	2,750,000	2,750,000
Sewa Peralatan	Ruang penunjang penelitian	Unit	2	875,000	1,750,000
Sewa Peralatan	Transport penelitian	OK (kali)	3	725,000	2,175,000
Sewa Peralatan	Obyek penelitian	Unit	100	55,000	5,500,000

6. KEMAJUAN PENELITIAN

A. RINGKASAN: Tuliskan secara ringkas latar belakang penelitian, tujuan dan tahapan metode penelitian, luaran yang ditargetkan, serta uraian TKT penelitian.

Limbah ikan merupakan sisa-sisa bagian pada tubuh ikan yang sudah tidak dapat digunakan atau dikonsumsi oleh manusia. Jika dibiarkan menumpuk begitu saja maka akan menyebabkan pencemaran organik, bau, dan mengurangi nilai estetika lingkungan sekitarnya. Limbah ikan cukup melimpah di Kalimantan Selatan, namun pemanfaatannya untuk ternak masih terbatas meskipun memiliki keunggulan dimana kandungan proteinya, dan kandungan omega 3 nya cukup tinggi. Disamping itu limbah ikan tidak bersaing dengan manusia, karenanya merupakan potensi yang sangat besar untuk pakan ternak. Terdapat kendala dari limbah ikan ini diantaranya kadar air yang cukup tinggi sehingga apabila disimpan lama akan berbau busuk karena mudah ditumbuhi mikroba. Untuk meningkatkan nilai guna dari limbah ikan, maka perlu terobosan modifikasi pengolahan pakan agar kekurangan tadi bisa diatasi, diantaranya adalah dengan fermentasi. Proses fermentasi selain meningkatkan nilai nutrisi pakan, mengurangi bau dan juga dapat meningkatkan pencernaan pakan. Tujuan penelitian ini adalah memanfaatkan limbah ikan menjadi pakan ternak bagi ternak itik petelur melalui modifikasi pengolahan pakan itik, sehingga pakan yang dimodifikasi tersebut memiliki tingkat pencernaan yang lebih baik dan telur itik yang dihasilkan tinggi akan kandungan Omega 3 dan turunnya kandungan kolesterol. Penelitian ini dilakukan dengan mencobakan berbagai tingkat limbah ikan yang sudah difermentasi dalam pakan (dengan tingkat penggunaan 0-40% dalam pakan itik petelur) pada kandang individual untuk melihat kualitas produksi telur, clutch, interval, dan kualitas fisik dan kimia telur Itik serta kandungan kolesterol pada telur dan daging itik. Luaran yang ditargetkan dalam publikasi pada jurnal Internasional Bereputasi Pakistan Journal of Nutrition yang terindex scopus (Q3), Publikasi pada seminar Internasional Conference of Agricultural and Food Science (ICOFA). Adapun TKT yang dilakukan adalah mulai TKT 2 dan pada akhir penelitian pada TKT 3.

B. KATA KUNCI: Tuliskan maksimal 5 kata kunci.

Limbah Ikan; Omega 3; Kolesterol; Itik Alabio

Pengisian poin C sampai dengan poin H mengikuti template berikut dan tidak dibatasi jumlah kata atau halaman namun disarankan sesingkat mungkin. Dilarang menghapus/modifikasi template ataupun menghapus penjelasan di setiap poin.

C. HASIL PELAKSANAAN PENELITIAN: Tuliskan secara ringkas hasil pelaksanaan penelitian yang telah dicapai sesuai tahun pelaksanaan penelitian. Penyajian dapat berupa data, hasil analisis, dan capaian luaran (wajib dan atau tambahan). Seluruh hasil atau capaian yang dilaporkan harus berkaitan dengan tahapan pelaksanaan penelitian sebagaimana direncanakan pada proposal. Penyajian data dapat berupa gambar, tabel, grafik, dan sejenisnya, serta analisis didukung dengan sumber pustaka primer yang relevan dan terkini.

Dokumen pendukung luaran Wajib #1

Luaran dijanjikan: Artikel di Jurnal Internasional Terindeks di Pengindeks Bereputasi

Target: Accepted

Dicapai: Submitted

Dokumen wajib diunggah:

1. Naskah artikel
2. Bukti submit

Dokumen sudah diunggah:

1. Naskah artikel
2. Bukti submit

Dokumen belum diunggah:

- Sudah lengkap

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Peran penulis: corresponding author | EISSN: 23082801

Nama Lembaga Pengindek: Scopus

URL jurnal: <http://manuscripthandler.com/nexus/Journal-of-Animal-Health-and-Production/home>

Judul artikel: UTILIZATION OF FERMENTED FISH WASTE AS MULTIPURPOSE FEED IN IMPROVING THE QUALITY AND OMEGA 3 CONTENT IN ALABIO DUCK EGG

UTILIZATION OF FERMENTED FISH WASTE AS MULTIPURPOSE FEED IN IMPROVING THE EGG PRODUCTION AND OMEGA 3 CONTENT IN ALABIO DUCK EGG

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Abstract. This research aims to analyze the utilization of fish waste modified through fermentation using EM-4 against the appearance of egg-laying Alabio ducks. Alabio ducks used are 5-6 months old as many as 50 duck are placed in cage cages that are filled with 2 tails each. Feed given refers to the needs of laying ducks with 18% protein and Metabolic Energy 2900 Kcal. Feed is given 150-200 g.bird⁻¹.day⁻¹. As for drinking water is given on an ad libitum. The research design used is a Complete Random design with 5 feed treatments each fermented fish waste of 0%, 5%, 10%, 15% and 20% with 5 replication. The results showed that the utilization of fermented fish waste has a positive influence on the increased production of Alabio duck eggs (% duck day), exterior quality and interior of Alabio duck eggs. The use of fermented fish waste up to 15% in duck rations, providing the best results against the appearance of production and interior quality of alabio duck eggs.

Keywords: *Fish Waste, fermentation, omega 3, Alabio duck egg*

Introduction

Alabio duck is a germplasm that is very well known especially in South Kalimantan. The advantages of duck eggs compared to other poultry eggs include rich in minerals, vitamin B6, pantoteic acid, thiamine, vitamin A, vitamin E, niacin, and vitamin B12. In addition to the advantages, duck eggs also have a deficiency compared to other poultry eggs that have a high content of saturated fatty acids that stimulate increased blood cholesterol levels. The cholesterol levels of duck eggs are approximately twice as high as chicken eggs. To increase the content of omega-3 fatty acids and lower cholesterol in livestock products especially egg products can be done through feed engineering with the addition of alessandry plant oil et al. 1998; Sc eideler et al; 1998; Apriyanto et al; 1997; Herber and Van Elswyk;1996) or fermented feed (Collins et al,1997).

Fish waste is the remains of parts on the body of fish that can no longer be used or consumed by humans. If left to accumulate alone it will cause organic pollution, odor, and reduce the aesthetic value of the surrounding environment. Fish waste is quite abundant in South Kalimantan, but its utilization for livestock is still limited despite the advantages of its protein

39 content, and its high omega 3 content. Besides, fish waste does not compete with humans, hence
40 it is a very large potential for animal feed. There are obstacles dali waste this fish among others
41 high enough water content that if stored long will smell rotten because it is easily overgrown
42 microbes. To increase the value of fish waste, it is necessary to breakthrough modification of
43 feed processing so that the deficiencies can be overcome, among others by fermentation.
44 Fermentation process in addition to increasing the nutritional value of feed, reducing odor and
45 juda can improve feed digestibility.

46 Fish waste can be fish that are no longer worth consuming or processing, or from processing
47 waste such as fish stomach contents and other parts that are not commercialized. Fresh fish waste
48 is not much different from fresh fish. Fish innards waste contains high protein and unsaturated
49 fats, in addition fresh fish waste also contains omega 3 fatty acids. Omega 3 fatty acids are
50 essential fatty acids that are very useful for the human body. The purpose of this study is to
51 analyze the utilization of fermented fish waste in rations against the production and quality of
52 alabio duck eggs.

53 MATERIALS AND METHODS

54 Time and Place

55 The research was conducted at the Agricultural Laboratory of the Center for the Study of
56 Agricultural Technology of South Kalimantan and the Feed Technology Laboratory of the
57 Faculty of Agriculture of the Islamic University of Kalimantan MAB from March to November
58 2020.

59 Materials

60 Ingredients used include: 40 adult Alabio ducks fermented fish waste, other conventional
61 feed materials such as yellow corn, soybean meal, rice bran, fishmeal, coconut meal, premix, DL
62 Methionine, Bone meal, EM-4. The tools used are grinder machines, feed mixers, cages as many
63 as 25 units, bulb lamps, feed places and drinking places, digital scales. The amount of feed given
64 as much as 750Kg for 50 alabio ducks laying for 60 days. Feeding trial was conducted in the
65 cage of Duck Poultry Laboratory Of The Agricultural Technology Assessment Agency of South
66 Kalimantan. Feed milling is carried out using a grinder machine capacity of 200 kg/h and feed
67 mixing is carried out using horizontal mixer capacity of 100 kg.

68 Methods

69 The study used a Complete Randomized Design (RAL) of laying ducks with 5 treatments
70 and 5 replays and each replay consisted of 2 tails. The treatment used is the level of feeding of
71 fermented fish waste as additional feed against the content of omega 3 and egg cholesterol of
72 ducks. The treatment in this study consisted of control, 0%, 5%, 10%, 15% and 20%
73 fermentation of fish waste in rations. The variables observed in this study are Duck day egg
74 production (%), Exterior quality and interior of duck eggs.

75 **Statistical Analysis**

76 In observations during the study, data was collected and analyzed to determine the
77 difference in the effect of treatment on observed variables. The data obtained first tested its
78 homogeneity with barlett tests, then analyzed statistics using variety analysis. If there is a real or
79 very real influence then continue with the middle score test using duncan multiple area test
80 (DMRT) according to Steel and Torrie (1993).

81 **RESULTS AND DISCUSSIONS**

82 In this study the composition of feed treatment is presented in Table 1.

83 The preparation of treatment rations based on the nutritional needs of laying ducks is 18%
84 Coarse Protein and metabolic energy 2750-2800 Kcal (Nutrient Requirement of Duck from
85 NRC, 2004). Based on the results of the study for 6 weeks obtained results as presented in Table
86 1.

87 Table 2. Average appearance of Alabio duck egg production during study

88 **Egg Production**

89 Duck day production (%) Alabio ducks showed the highest scores on R20 treatment, while
90 R5 and R10 treatments were still under control. This indicates that the use of fermented fish
91 waste begins to be seen when it reaches 15% in rations. Actually this is very profitable because
92 with the amount of 15%-20% able to replace khewani proteins such as fishmeal that are
93 relatively expensive.. This value is much higher than biyatmoko research (2007), whose alabio
94 duck egg production reached 67.32% with the administration of Niacin on its feed. It is
95 suspected that in addition to the production life is close to peak production, also the difference in
96 feeding of better sources of khewani protein., although the content of Protein and Energy is
97 relatively the same. Solihat et al. (2003) states that egg production is influenced by feed, genetic
98 and sex cooking speed.

99 **Egg Weight**

100 Based on DMRT test results, control treatment is higher than all treatments. This means the
101 use of fermented fish waste in rations has not been able to increase the weight of alabio duck
102 eggs, although in duck day egg production (%) the highest number of R20 treatments.

103 **Ration Consumption**

104 Based on the results of ration consumption, control treatment (R0) shows the highest feed
105 consumption disbanding other treatments. This is in line with the weight of the resulting eggs
106 including the highest. Even the treatment that can match the consumption of rations is the R20
107 treatment, although statistically the R20 treatment is no different from R5, R10 and R15.

108

109 **Ration Conversion**

110 For ration conversions, it turns out to show no real different results for all treatments. This
111 value is a comparison between ration consumption and egg weight. So it is suspected that overall
112 there is a physiological state leading towards normality where if feed consumption is high it will
113 be manifested with a high egg weight, as well as vice versa. So by comparison it shows a
114 relatively normal hail.

115 **Egg Shape Index**

116 The egg shape index also shows results that do not show statistical differences. This
117 indicates that the resulting egg represents the normal shape of the oval egg. It is suspected that
118 eggs that tend to be normal ovals are produced from ducks that are approaching peak production.
119 Here it is used in the study is already 28 weeks old.

120 **Thick eggshell**

121 In the thick parameters of the kerabang does not show any difference, it is suspected that up
122 to 20% of the use of fermented fish waste, still does not increase the thickness of the kerabang.
123 The thickness of this ape is closely related to calcium and phosphor consumption as well as the
124 balance of Ca:P. In this study the thickness of the brotherly ranges from 347-358 (μm) or 0.35-
125 0.36 mm. According to Fajarwati et al. the thickness of alabio duck egg has an average of 0.33 \square
126 0.01 mm.

127 **Percentage Of eggshell Weight**

128 The thickness of the brotherly is closely related to the percentage of the weight of the
129 brother. The thicker it will increase the weight of the brotherly. However, there is a difference
130 between the weight of the control treatment (R0) with all treatments except R15. The highest
131 percentage of weight gained in R0 was 10.16% and the lowest was R5 treatment (9.21%).

132 **Egg Yolk Index**

133 The Yolk Index is related to the size of the egg. Usually the larger the yolk then the weight
134 of the egg will be greater. This yolk index is a high comparison of the yolk with the diameter of
135 the yolk. The value of the treatment egg yolk index ranges from 36.28 to 37.47. This value is
136 higher than the average egg yolk index in chickens which ranges from 33% – 50%. The highest
137 yolk index is obtained in R20 treatment.

138

CONCLUSIONS

139 Utilization of fermented fish waste on Alabio ducks is able to provide the result of ration
140 conversion, egg shape index and thick forging that is not different from control (R0), but the
141 treatment of fish waste to egg production (% duck day), and egg yolk index shows better results
142 than control especially R20 treatment. The utilization of fermented fish waste can be used in
143 alabio duck rations up to 20%, without a negative effect on the performance of alabio duck egg

144 production. It is recommended that fermented fish waste can be used as a substitute for a protein
145 source of animal up to 20% in Alabio ducks.

146 **ACKNOWLEDGMENTS**

147 The study was funding by Directorate of Research and Community Service of the Ministry of
148 Research, Technology, Republic of Indonesia.

149

150 **CONFLICT OF INTEREST**

151 All the authors were declaring that they have no conflict of interest.

152

153 **AUTHORS CONTRIBUTION**

154 The experimental design was achieved by Achmad Jaelani, the actual research organized by
155 Taufikurrahman and Tintin Rostini tabularized the data and done the statistical analyses.

156

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225 Table 1. Nutritional composition of treatment rations

Nutritional Content	Treatment				
	R 0	R 5	R 10	R 15	R 20
Crude Protein (%)	18,00	18,12	18,12	18,17	18,07
Crude fiber (%)	5,14	5,47	5,47	5,61	6,12
Crude Lipid (%)	4,80	6,57	6,57	6,72	6,84
Metabolizable Energy (Kkal)	2755	2758	2758	2786	2804
Metionin (%)	0,37	0,38	0,38	0,41	0,43
Lisin (%)	1,03	0,99	0,99	0,98	0,99
Calsium (%)	3,20	3,32	3,32	3,41	3,56
Phosfor Total (%)	0,65	0,71	0,71	0,76	0,82
Balanced Ca : P	4,92	4,67	4,67	4,48	4,34

226 Description : R 0 = Use of 0% Fermented Fish Waste in rations

227 R 5 = Use of 5% fermented Fish Waste in rations

228 R 10 = Use of 10% fermented Fish Waste in rations

229 R 15 = Use of 15% fermented Fish Waste in rations

230 R 20 = Use of 20% fermented Fish Waste in rations

231

232 Table 2. Average appearance of Alabio duck egg production

No	Variable	Treatment				
		R0	R5	R10	R15	R20
1.	Duck day production (%)	82,05a	65,58c	73,22b	82,47a	83,22a
2.	Egg weight (g)	72,39b	69,71a	70,15a	69,24a	70,48a
3.	Consumption (g.bird ⁻¹ .day ⁻¹)	190a	177b	178b	178b	184ab
4.	Conversion ration	2,62	2,54	2,54	2,57	2,61
5.	Shape egg index	74,66	75,14	75,31	75,18	76,12
6.	Thickness eggshell (µm)	358	352	347	348	357
7.	Eggshell weight percentage (%)	10,16a	9,21b	9,68b	10,13a	9,24b
8.	Yolk index (%)	37,18a	36,28b	36,32b	37,24a	37,47a

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Bukti Submission Manuscript

The screenshot shows a web browser window with the URL `manuscripthandler.com/hexus/Journal-of-Animal-Health-and-Production/user-panel/submissions-with-d...`. The page header includes the MH logo and navigation links: "Welcome back: Achmad Jaelani", "Home", "Dashboard", "Update Profile", and "Logout". The main content area features a large banner for "Journal of Animal Health and Production". Below the banner, the "Author's Panel" section provides instructions for manuscript submission and processing. The text explains the stages from submission to publication, including the role of reviewers and the editor's decision. A taskbar at the bottom shows a PDF file named "OMEGA 3-6 DAN KH..." and the system clock indicates 7:09 AM on 11/16/2020.

Author's Panel

To proceed with the submission of a new manuscript, click on the "Submit New Manuscript" section. All incomplete submissions will be placed in the "Incomplete Submissions". If all the required information is completed, a final PDF has to be generated for approval by the author. This manuscript will be under "Waiting for Author's Approval". Once approved, the article will be submitted and will be moved to "Submissions Being Processed" section. Please note that for a successful submitted manuscript, that manuscript must be under "Submissions Being Processed" and you must have received a confirmatory email on your provided email address.

Once the Editor makes a decision, the manuscript will move to "Submissions with Decision" and it will be notified to the author.

Authors can revise the manuscripts with major or minor revision, corresponding to "New Submissions" information. The final revised and submitted manuscripts must be under "Revisions Being Processed" and you must have received confirmatory emails.

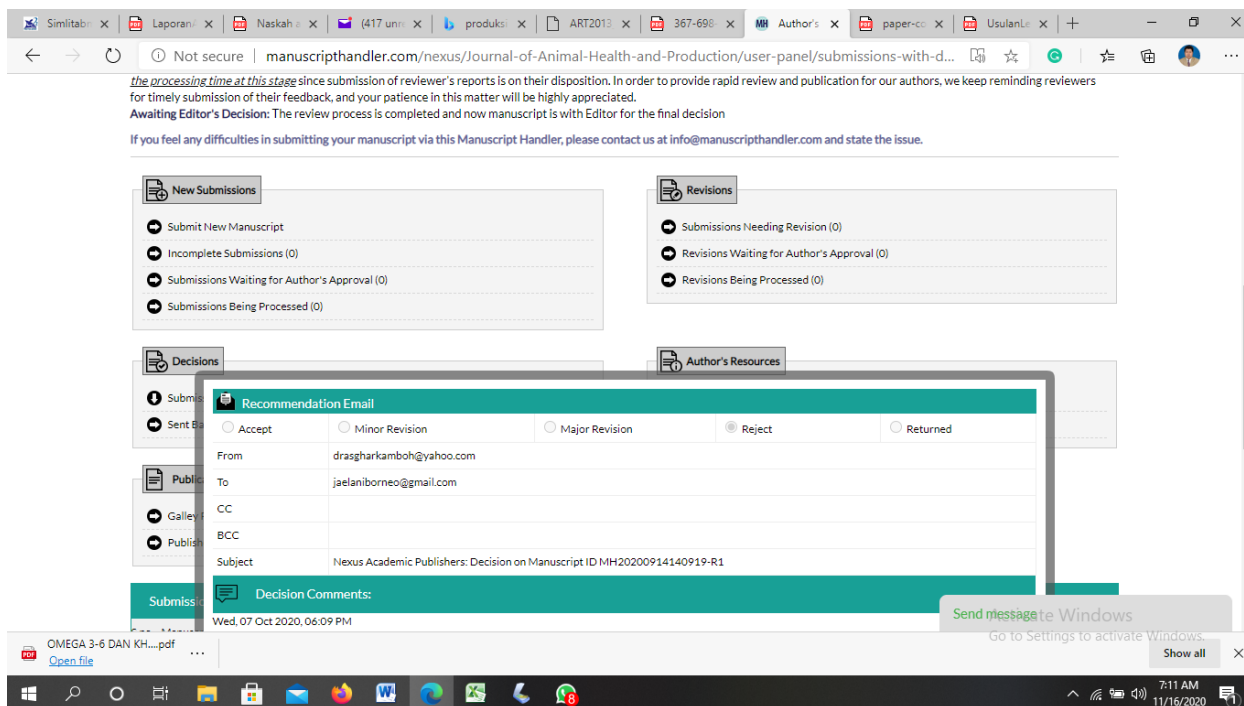
Communication will be made with the authors once manuscripts are accepted and "Galley Proof" are sent to the authors and will be displayed under "Published" once are published on the journal's home page.

The number indicates the numbers of the manuscript in each section. Click on any tab, the corresponding manuscript will be displayed at the bottom of this page and the detail can be viewed by clicking on the edit symbol under "Action" section.

This screenshot displays the "submissions-need-r..." page of the Manuscript Handler. It provides detailed instructions for authors regarding the review process, including sections for "Awaiting Reviewer Selection", "Awaiting Reviewers Consent", "Awaiting Reviewers Reports", and "Awaiting Editor's Decision". The main dashboard is organized into several categories:

- New Submissions:** Includes links for "Submit New Manuscript", "Incomplete Submissions (0)", "Submissions Waiting for Author's Approval (0)", and "Submissions Being Processed (0)".
- Revisions:** Includes links for "Submissions Needing Revision (0)", "Revisions Waiting for Author's Approval (0)", and "Revisions Being Processed (0)".
- Decisions:** Includes links for "Submissions with a Decision (1)" and "Sent Back to Author (0)".
- Author's Resources:** Includes links for "Author's Tutorial (PDF)" and "Author's Tutorial (Video)".
- Publications:** Includes links for "Galley Proof (0)" and "Published (0)".

The browser's taskbar at the bottom shows the same PDF file as the previous screenshot, and the system clock indicates 7:28 AM on 11/16/2020.



Wed, 07 Oct 2020, 06:09 PM

Dear Dr. Achmad Jaelani,

We write you in regards to manuscript ID MH20200914140919-R1 entitled " Utilization Of Fermented Fish Waste As Multipurpose Feed In Increasing The Quality and Omega 3 Content In Alabio (*Anas platyrinchos* Borneo) Duck Egg " which you submitted to the Journal of Animal Health and Production.

Thank you for submitting your paper to Journal of Animal Health and Production. We have received the reports from the reviewers and on their recommendation have decided that we are unable to publish the paper. We include their comments below.

While it is always disappointing to have a manuscript refused publication, we would nevertheless wish to encourage you to submit further papers to Journal of Animal Health and Production, and look forward to receiving them.

Sincerely,
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Luaran dijanjikan: Artikel pada Conference/Seminar Internasional

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Dicapai: Accepted

Dokumen wajib diunggah:

1. Naskah artikel
2. Surat keterangan accepted dari editor

Dokumen sudah diunggah:

1. Naskah artikel
2. Surat keterangan accepted dari editor

Dokumen belum diunggah:

-

UTILIZATION OF FERMENTED FISH WASTE AS MULTIPURPOSE FEED AGAINST THE PERFORMANCE OF ALABIO DUCKS

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ABSTRACT

This study is in charge of analyzing the utilization of fish waste modified through fermentation using EM-4 against the appearance of egg-laying Alabio ducks. Alabio ducks used are 5-6 months old as many as 50 tails are placed in cage cages that are filled with 2 tails each. Feed given refers to the needs of laying ducks with 18% protein and Metabolic Energy 2900 Kcal. Feed is given 150-200 g/tail/day. As for drinking water is given on an ad libitum. The research design used is a Complete Random design with 5 feed treatments each fermented fish waste of 0%, 5%, 10%, 15% and 20% with 5 replays. The results showed that the utilization of fermented fish waste has a positive influence on the increased production of Alabio duck eggs (% duck day), exterior quality and interior of Alabio duck eggs. The use of fermented fish waste up to 15% in duck rations, providing the best results against the appearance of production and interior quality of alabio duck eggs.

Keyword : *Fish waste, Fermentation, cholesterol, alabio ducks*

I. INTRODUCTION

Alabio duck is a germplasm that is very well known especially in South Kalimantan. The advantages of duck eggs compared to other poultry eggs include rich in minerals, vitamin B6, pantoteic acid, thiamine, vitamin A, vitamin E, niacin, and vitamin B12. In addition to the advantages, duck eggs also have a deficiency compared to other poultry eggs that have a high content of saturated fatty acids that stimulate increased blood cholesterol levels. The cholesterol levels of duck eggs are approximately twice as high as chicken eggs. To increase the content of omega-3 fatty acids and lower cholesterol in livestock products especially egg products can be done through feed engineering with the addition of alesandry plant oil et al. 1998; Sceideler et al; 1998; Apriyanto et al; 1997; Herber and Van Elswyk;1996) or fermented feed (Collins et al,1997).

Fish waste is the remains of parts on the body of fish that can no longer be used or consumed by humans. If left to accumulate alone it will cause organic pollution, odor, and reduce the aesthetic value of the surrounding environment. Fish waste is quite abundant in South Kalimantan, but its utilization for livestock is still limited despite the advantages of its protein content, and its high omega 3 content. Besides, fish waste does not compete with humans, hence it is a very large potential for animal feed. There are obstacles dali waste this

fish among others high enough water content that if stored long will smell rotten because it is easily overgrown microbes. To increase the value of fish waste, it is necessary to breakthrough modification of feed processing so that the deficiencies can be overcome, among others by fermentation. Fermentation process in addition to increasing the nutritional value of feed, reducing odor and juda can improve feed digestibility.

Fish waste can be fish that are no longer worth consuming or processing, or from processing waste such as fish stomach contents and other parts that are not commercialized. Fresh fish waste is not much different from fresh fish. Fish innards waste contains high protein and unsaturated fats, in addition fresh fish waste also contains omega 3 fatty acids. Omega 3 fatty acids are essential fatty acids that are very useful for the human body. The purpose of this study is to analyze the utilization of fermented fish waste in rations against the production and quality of alabio duck eggs.

II. LITERATURE REVIEW

The issue of feed is still one of the main issues in the activities cultivation of livestock, both for poultry and ruminansia. This is mainly because feed is a significant component in the structure of livestock production costs. In addition to factors the cost, content and nutritional composition of feed will also have a direct effect on the health of Livestock. The health of livestock will also directly affect the productivity and quality of farm products. Feed is a major need in the livestock business and is very sustainability. The adequacy of feed, in terms of quantity and quality, is requirements that must be met to ensure that livestock are healthy, growing normally and production as expected. The needs and availability of feed, especially duck livestock laying, is currently greatly disrupted by the availability of feed materials and prices are soaring High. This condition has been going on for quite a while and causes the availability of feed Fluctuate. On industrial-scale farms the availability of feed can be addressed by procurement of feed specifically and or supplies of preserved feed, but for farms with very little ownership, so it is a problem that's hard. Reliance on imported feed components needs to be reduced in order for feed costs to be Pressed. Therefore, it is necessary to intensify efforts to explore local feed raw materials with good nutritional content, available in adequate quantities, and affordable by local/domestic farmers. Soedjana (2007) also agreed that efforts to improve livestock production must be based on local resources, meaning all potential and resources we have to be more optimized. Lisson et al. (2010) reported that although technology to increase productivity is basically available; but in general general, the adoption of technology to improve livestock cultivation system is still very slow.

Nutrient Needs on Laying Ducks One of the challenges for tropical countries such as Indonesia in the development of livestock especially poultry livestock is related to the availability and adequacy of nutrients is a protracted problem that must be solved with a sustainable approach to integrated feed technology. Integrated program of providing animal feed quality needs to be supported with round-the-clock availability in order to support our

intensive farming. Animal protein source feed ingredients have an advantage because the content of amino acids is complete, so it is very good for the growth and livestock production. In line with the development of feed technology, fish market waste can be effectively used as an alternative to animal feed laying ducks by providing treatment aimed at improving the productivity of laying ducks. Duck Egg Duck Egg is a source of animal protein that has a very delicious taste, easy to digested and highly nutritious. Duck eggs are generally large and white until bluish green. The average weight of duck eggs is 60-75 g (Resi, 2009).

Fish Waste is a waste resulting from a production process both industrial and (household), better known as garbage, whose presence at some point and certain places do not want the environment because it has no economic value. When chemically reviewed, this waste consists of organic compound chemicals and Inorganic. With a certain concentration and quantity, the presence of waste can negatively impact environment, especially for human health, so it is necessary to address the against waste. Fishery waste contains nutrients that are no different from mainly and has tiresFishery waste contains nutrients that are no different from and has also been extensively researched (Syukron, 2013). Fishery waste can come from upstream fisheries activities (aquaculture), and downstream fisheries activities (processing, transportation, marketing). Industrial by-results fishery treatment is generally in the form of head, innards, skin, bones, fins, blood and water used Production. Traditional processing activities are generally less able to utilize this side result, not even made use of it at all so it is wasted just like that. The by-products of fishery industry activities can be classified into five groups i.e. by-results in the utilization of a species or resource; residual processing from freezing, canning, and traditional industries, participating products; surplus from a harvest and remaining distribution (Syukron 2013).

III. METHODOLOGY

Time and Place

The research was conducted at the Agricultural Laboratory of the Center for the Study of Agricultural Technology of South Kalimantan and the Feed Technology Laboratory of the Faculty of Agriculture of the Islamic University of Kalimantan MAB from March to November 2020.

Materials

Ingredients used include: 40 adult Alabio ducks fermented fish waste, other conventional feed materials such as yellow corn, soybean meal, rice bran, fishmeal, coconut meal, premix, DL Methionine, Bone meal, EM-4. The tools used are grinder machines, feed mixers, cages as many as 25 units, bulb lamps, feed places and drinking places, digital scales. The amount of feed given as much as 750Kg for 50 alabio ducks laying for 60 days. Feeding trial was conducted in the cage of Duck Poultry Laboratory Of The Agricultural Technology Assessment Agency of South Kalimantan. Feed milling is carried out using a grinder machine capacity of 200 kg/h and feed mixing is carried out using horizontal mixer capacity of 100 kg.

Methods

The study used a Complete Randomized Design (RAL) of laying ducks with 5 treatments and 5 replays and each replay consisted of 2 tails. The treatment used is the level of feeding of fermented fish waste as additional feed against the content of omega 3 and egg cholesterol of ducks. The treatment in this study consisted of control, 0%, 5%, 10%, 15% and 20% fermentation of fish waste in rations. The variables observed in this study are Duck day egg production (%), Exterior quality and interior of duck eggs.

Statistical Analysis

In observations during the study, data was collected and analyzed to determine the difference in the effect of treatment on observed variables. The data obtained first tested its homogeneity with barlett tests, then analyzed statistics using variety analysis. If there is a real or very real influence then continue with the middle score test using duncan multiple area test (DMRT) according to Steel and Torrie (1993).

IV. RESULT AND DISCUSSION

In this study the composition of feed treatment is presented in Table 1. The preparation of treatment rations based on the nutritional needs of laying ducks is 18% 84 Coarse Protein and metabolic energy 2750-2800 Kcal (Nutrient Requirement of Duck from 85 NRC, 2004). Based on the results of the study for 6 weeks obtained results as presented in Table 1.

Table 1. Nutritional composition of treatment rations

Nutrition Content	Perlakuan				
	R 0	R 5	R 10	R 15	R 20
Crude Protein (%)	18,00	18,12	18,12	18,17	18,07
Crude fiber (%)	5,14	5,47	5,47	5,61	6,12
Crude fat (%)	4,80	6,57	6,57	6,72	6,84
Metabolizable Energy (Kkal)	2755	2758	2758	2786	2804
Metionin (%)	0,37	0,38	0,38	0,41	0,43
Lisin (%)	1,03	0,99	0,99	0,98	0,99
Calsium (%)	3,20	3,32	3,32	3,41	3,56
Phosfor Total (%)	0,65	0,71	0,71	0,76	0,82
Balanced Ca : P	4,92	4,67	4,67	4,48	4,34

Description : R 0 = Use of 0% Fermented Fish Waste in rations
R 5 = Use of 5% fermented Fish Waste in rations
R 10 = Use of 10% fermented Fish Waste in rations
R 15 = Use of 15% fermented Fish Waste in rations
R 20 = Use of 20% fermented Fish Waste in rations

Table 2. Average Performance of Alabio duck egg production during study

No	Variabel	Treatment				
		R0	R5	R10	R15	R20
1.	Duck day production (%)	82,05a	65,58c	73,22b	82,47a	83,22a
2.	Egg Weight (g)	72,39b	69,71a	70,15a	69,24a	70,48a
3.	Ration Consumption (g.bird ⁻¹ .day ⁻¹)	190a	177b	178b	178b	184ab
4.	Ration Conversion	2,62	2,54	2,54	2,57	2,61
5.	Shape egg index	74,66	75,14	75,31	75,18	76,12
6.	Eggshell thickness (µm)	358	352	347	348	357
7.	Eggshell weight percentage (%)	10,16a	9,21b	9,68b	10,13a	9,24b
8.	Yolk egg color (%)	37,18a	36,28b	36,32b	37,24a	37,47a

Egg Production

Duck day production (%) Alabio ducks showed the highest scores on R20 treatment, while R5 and R10 treatments were still under control. This indicates that the use of fermented fish waste begins to be seen when it reaches 15% in rations. Actually this is very profitable because with the amount of 15%-20% able to replace khewani proteins such as fishmeal that are relatively expensive. This value is much higher than Biyatmoko research (2007), whose alabio duck egg production reached 67.32% with the administration of Niacin on its feed. It is suspected that in addition to the production life is close to peak production, also the difference in feeding of better sources of khewani protein., although the content of Protein and Energy is relatively the same. Solihat et al. (2003) states that egg production is influenced by feed, genetic and sex cooking speed. Egg Weight Based on DMRT test results, control treatment is higher than all treatments. This means the use of fermented fish waste in rations has not been able to increase the weight of alabio duck eggs, although in duck day egg production (%) the highest number of R20 treatments.

Ration Consumption

Based on the results of ration consumption, control treatment (R0) shows the highest feed consumption disbanding other treatments. This is in line with the weight of the resulting eggs including the highest. Even the treatment that can match the consumption of rations is the R20 treatment, although statistically the R20 treatment is no different from R5, R10 and R15. 108 4

Ration Conversion

For ration conversions, it turns out to show no real different results for all treatments. This value is a comparison between ration consumption and egg weight. So it is suspected that overall there is a physiological state leading towards normality where if feed consumption is high it will be manifested with a high egg weight, as well as vice versa. So by comparison it shows a relatively normal hail.

Egg Shape Index

The egg shape index also shows results that do not show statistical differences. This indicates that the resulting egg represents the normal shape of the oval egg. It is suspected that eggs that tend to be normal ovals are produced from ducks that are approaching peak production. Here it used in the study is already 28 weeks old. Thick eggshell In the thick parameters of the kerabang does not show any difference, it is suspected that up to 20% of the use of fermented fish waste, still does not increase the thickness of the kerabang. The thickness of this ape is closely related to calcium and phosphor consumption as well as the balance of Ca:P. In this study the thickness of the brotherly ranges from 347-358 (µm) or 0.35- 125 0.36 mm. According to Fajarwati et al. the thickness of alabio 0.01 mm. Percentage Of eggshell Weight The thickness of the brotherly is closely related to the percentage of the

weight of the brother. The thicker it will increase the weight of the brotherly. However, there is a difference between the weight of the control treatment (R0) with all treatments except R15. The highest percentage of weight gained in R0 was 10.16% and the lowest was R5 treatment (9.21%). Egg Yolk Index The Yolk Index is related to the size of the egg. Usually the larger the yolk then the weight of the egg will be greater. This yolk index is a high comparison of the yolk with the diameter of the yolk. The value of the treatment egg yolk index ranges from 36.28 to 37.47. This value is higher than the average egg yolk index in chickens which ranges from 33% – 50%. The highest yolk index is obtained in R20 treatment.

V. CONCLUSIONS

Utilization of fermented fish waste on Alabio ducks is able to provide the result of ration conversion, egg shape index and thick forging that is not different from control (R0), but the treatment of fish waste to egg production (% duck day), and egg yolk index shows better results than control especially R20 treatment. The utilization of fermented fish waste can be used in alabio duck rations up to 20%, without a negative effect on the performance of alabio duck egg production. It is recommended that fermented fish waste can be used as a substitute for a protein source of animal up to 20% in Alabio ducks.

ACKNOWLEDGMENTS

The study was funding by Directorate of Research and Community Service of the Ministry of Research, Technology, Republic of Indonesia.

CONFLICT OF INTEREST

All the authors were declaring that they have no conflict of interest.

AUTHORS CONTRIBUTION

The experimental design was achieved by Achmad Jaelani, the actual research organized by Taufikurrahman and Tintin Rostini tabularized the data and done the statistical analyses.

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SUBMITT INTERNATIONAL CONFERENCE

The screenshot shows a Gmail interface with a 'Conference Registration' email from UNIDA-SUCCESS. The email content includes:

Conference Registration [Kotak Masuk x]

UNIDA-SUCCESS <success@unida.ac.id> kepada saya 06.03 (1 jam yang lalu)

Dear Mr./Mrs. Achmad Jaelani

Congratulation!

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This message is an automated reply to your registration request. Your registration has successfully submitted to the conference. Please find your summary of registration below :

Conference Detail

Conference name : 4th Bogor International Conference for Applied Science 2020 (4th BICAS 2020)
Venue : Bogor (Virtual Conference)
Date : Dec 02, 2020

Personal Detail

Author Type	Author Name	Institution	Country
First author	Achmad Jaelani	Islamic University of Kalimantan Muhammad Arsyad Indonesia	Indonesia

The screenshot shows a Gmail interface with a 'Personal Detail' table and an 'Article Detail' section.

Personal Detail

Author Type	Author Name	Institution	Country
First author	Achmad Jaelani	Islamic University of Kalimantan Muhammad Arsyad Indonesia	Indonesia
Co-author	Taufikurrahman	Islamic University of Kalimantan muhammad Arsyad Indonesia	Indonesia
Co-author	Tintin Rostini	Islamic University of Kalimantan Muhammad Arsyad Indonesia	Indonesia

Article Detail

Field of Study : Poultry Farming / Peternakan Unggas

Article Title : UTILIZATION OF FERMENTED WASTE FISH AS MULTIPURPOSE FEED AGAINST THE PERFORMANCE OF ALABIO DUCK

Abstract :

- Background : Fish waste is quite abundant in South Kalimantan but its utilization of livestock is still limited. Fish waste contains high protein and omega 3 but must be processed immediately because of the rotten.

- Purpose : This Studi was conducted to analyze the utilization of modified fish waste through fermentation with EM-4 against Performance egg-laying Alabio Duck

: This research Using Completely Randomized Design with 5 treatment and 5 replication, each treatment 0%, 5%, 10%, 15% and 20% fish

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Personal Detail

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Co-author	Taufikurrahman	Islamic University of Kalimantan Muhammad Arsyad Al Banjari Banjarmasin	Indonesia
Co-author	Tintin Rostini	Islamic University of Kalimantan Muhammad Arsyad Al Banjari Banjarmasin	Indonesia

Article Detail

Field of Study : Poultry Farming / Peternakan Unggas

Article Title : UTILIZATION OF FERMENTED WASTE FISH AS MULTIPURPOSE FEED AGAINST THE PERFORMANCE OF ALABIO DUCK

Abstract :

- Background : Fish waste is quite abundant in South Kalimantan but its utilization of livestock is still limited. Fish waste contains high protein and omega 3 but must be processed immediately because of the rotten.

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Field of study: Poultry Farming / Peternakan Unggas

Article title: UTILIZATION OF FERMENTED WASTE FISH AS MULTIPURPOSE FEED AGAINST THE PERFORMANCE OF ALABIO DUCK

Author: Taufikurrahman, Achmad Jaelani, Tintin Rostini

Abstract:

Background:
Fish waste is quite abundant in South Kalimantan but its utilization of livestock is still limited. Fish waste contains high protein and omega 3 but must be processed immediately because of the rotten.

Purpose:
This Studi was conducted to analyze the utilization of modified fish waste through fermentation with EM-4 against Performance egg-laying Alabio Duck

Design/methodology/approach:
This research Using Completely Randomized Design with 5 treatment and 5 replication, each treatment 0%, 5%, 10%, 15% and 20% fish wasted in ration Alabio duck

Findings:
The Result showed that the utilization of fermented fish waste has a positive influence on the increased production of Alabio duck egg (% duck day), exterior and interior quality duck egg. The use of fermented fish wastes up to 15% of the ration, providing the best result against the performance of production and interior quality of Alabio duck egg

Research limitations:
This research should be using conducted within longer production periods and a greater number of ducks

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Author: Achmad Jaelani, Taufikurrahman, Tintin Rostini

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Originality/value:
the originality of this study is to obtain product and fermentation process of local fish waste that is able to increase the production and quality of Alabio duck eggs

Keywords: Fermented, fish waste, alabio duck egg

Presenter: Achmad Jaelani

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