

Item	Recommendation	Section/line number or reason for not reporting
Study design	1	
	a	This experiment used four group levels of treatment immersion of fish larvae using probiotic as follows; control treatment without probiotic immersion (P0), immersion treatment with a dose of 2.0 ml.L ⁻¹ of water (P1); immersion treatment with a dose of 4.0 ml.L ⁻¹ of water (P2); immersion treatment with a dose of 6.0 ml.L ⁻¹ of water (P3)
	b	The experiment unit was a aquarium of animals
Sample size	2	
	a	The number of experimental units allocated to each group was three units of aquarium. The total number in experiment was 12 units. The number of brood stock of animals was 2 pairs. The total animals used was 600 fish larvae.
	b	The broodstock of Asian redtail catfish used was weight of 0.5 kg. The larvae average initial weight of 0.0077±0.000 g and an average length of 0.70±0.00 cm
Inclusion and exclusion criteria	3	
	a	In this experiment, the animals' criteria were larvae Asian redtail catfish (<i>Hemibagrus nemurus</i>) in a healthy condition, with no defects in the body, and willing to eat the feed provided during adaptation. We investigate the data absolute weight growth (g), absolute length growth (cm), the specific growth rate (SGR, %/day), and survival rate (%). In addition, we investigate the data of cannibalism value of Asian redtail catfish larvae (%)
	b	We make no exceptions to collecting data based on the data parameters to be analyzed
	c	The value exact of each experimental group is attached in Figshare
Randomisation	4	
	a	In this study, the placement of each treatment group was randomized using the lottery method (No 1 to 12)
	b	We assign a number for each treatment group to minimize potential confounders and measurements based on the draw results.
Blinding	5	All researchers were aware of group allocation at various stages of the experiment, outcome

			assessment, and data analysis based on the role of each researcher and the author's role.	author's contribution
Outcome measures	6	a	All results assessed based on the analyzed parameters in each treatment group, including absolute weight growth (g), absolute length growth (cm), specific growth rate (%/day), survival rate (%) and cannibalism value (%) are presented in raw data.	https://doi.org/10.6084/m9.figshare.27282330.v1
		b	The primary outcome measures of the hypothesis testing are the absolute weight growth (g), absolute length growth (cm), specific growth rate (%/day), survival rate (%) and cannibalism value (%).	In research parameters
Statistical methods	7	a	SPSS 22.0 software was used for data analysis. One-way ANOVA was used for the determined treatment effect, followed by a post hoc Student Newman Keuls (SNK) test. Data are reported as mean value \pm standard error for each treatment.	Presented in data analysis
		b	Methods used to assess whether the data met the assumptions of the statistical was Levine's test was used to determine the homogeneity of data. All data from the parameters tested are homogeneous.	Presented in the data analysis section
Experimental animals	8	a	In this study, we used Asian redbtail catfish (<i>Hemibagrus nemurus</i>) larvae, whose sex has not been determined, with an average initial weight of 0.0077 ± 0.000 g and an average length of 0.70 ± 0.00 cm.	Presented in raw data. https://doi.org/10.6084/m9.figshare.27282330.v1
		b	Asian redbtail catfish (<i>Hemibagrus nemurus</i>) larvae were obtained from the Fish Hatchery and Breeding Laboratory, Faculty of Fisheries and Marine Science Universitas Riau, Pekanbaru, Indonesia. This species' health status is good, not a hybridization genetic modification. The larvae used previously came from broodfish, reared on a farm Faculty of Fisheries and Marine Science, Universitas Riau, Pekanbaru.	Presented in research method
Experimental produces	9	a	This study soaked larvae in probiotics at three levels, including control, to feed Asian redbtail catfish (<i>Hemibagrus nemurus</i>) larvae fed with tubifex. The experimental animals used were 600 <i>Hemibagrus nemurus</i> larvae with an average initial weight of 0.0077 ± 0.0000 g and an average length of 0.70 ± 0.00 cm for each experimental group, including the control used. Each group used three aquarium units measuring 30x30x30 cm with a water volume of 20 liters. Each aquarium was filled with 50 larvae.	Presented in research method
		b	This study was conducted between May and July 2024. Fish were given natural food of <i>Tubifex</i> sp. at 07:00, 13:00, 19:00, and 01:00. Fish samples were collected every 10 days to evaluate length and weight, and fish were fasted for 24 hours before sampling to empty the intestinal contents. In the present study, to minimize stress on the experimental animals, the	Presented in ethical statement

animals within the containers were lightly anesthetized with 1 ml/10 L clove oil for 2–3 min until the loss of coordination was visible. Then, length and weight were measured.

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| c | The research was carried out in the Hatchery Laboratory, Faculty of Fisheries, and Marine Science, Universitas Riau, Pekanbaru, Indonesia. The probiotic solution is prepared according to the used dosage, using clean water free from harmful chemicals. The temperature and pH of the probiotic water are adjusted to match the rearing environment to avoid sudden changes that could cause stress in the larvae. Before immersion, temperature adaptation is performed gradually by placing the container holding the larvae into the probiotic water for 10-15 minutes, allowing the temperature to balance slowly. The immersion time is limited to around 10 minutes to prevent larvae from becoming stress; and also aerated so that the fish larvae did not lack oxygen. This duration also provides enough time for probiotic absorption without unnecessary prolonged exposure. After immersion, the larvae are transferred to the prepared rearing with stable and optimal water quality. | Presented in research method |
| d | All these procedures are carried out so that ongoing experiments can be carried out correctly and provide significant results to achieve the research objectives and proposed hypotheses | Presented in ethical statement |

Results	10	a	Data are reported as mean value \pm Standard Error, and P-value for each treatment group (ANOVA results via histogram) of each parameter analyzed.	Presented in Figure 1 to 4 and Table 1 at manuscript
		b	95% confidence interval for the mean of each parameter analyzed	Presented in Figure 1 to 4 and Table 1 at manuscript

The Recommended Set Manuscript No. 158122

These items complement the Essential 10 and add important context to the study. Reporting the items in both sets represents best practice

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Abstract	11	<p>This study aims to analyze the use of probiotics with a larval immersion method on the growth and survival of Asian redbtail catfish larvae.</p> <p>The study used a completely randomized design with 4 treatments and 3 replicates. Immersion treatment using probiotics consisted of P0 (control treatment without probiotic immersion), P1 (immersion treatment with a dose of 2.0 ml.L⁻¹ of water), P2 (immersion treatment with a dose of 4.0 ml.L⁻¹ of water), P3 (immersion treatment with a dose of 6.0 ml.L⁻¹ of water), with a stocking density of 50 fish/aquarium.</p> <p>The results showed that the best treatment was P3 (immersion treatment with a dose of 6.0 ml.L⁻¹ of water), where the probiotic immersion treatment with a dose of 6 ml.L⁻¹.</p> <p>The immersion of Asian redbtail catfish larvae in different doses of probiotics can improve the growth and survival of Asian redbtail catfish larvae.</p>	In abstract section
Background	12	<p>a Asian redbtail catfish (<i>Hemibagrus nemurus</i>) is one of the freshwater fish commodities that are the mainstay of fishery commodities in Riau Province. This fish belongs to the 'Catfish' group and is one of 31 economically important fish species in the waters of Riau's Kampar River. The problem of adhesive fish eggs has been overcome by soaking the eggs in a solution of natural plant extracts. Another problem in Asian redbtail catfish farming is that the growth of fish larvae to reach seed size is relatively slow. Therefore, one of the efforts that can support the quality and quantity of larvae is to increase the growth and survival of Asian redbtail catfish larvae through the provision of probiotics. Giving probiotics can increase the survival and growth of Asian redbtail catfish larvae, where probiotic applications have been widely used in fish with slow growth rates. One of the probiotics that can be used in aquaculture is probiotics with the trademark probiotic mina pro. From the description above, it is necessary to research to determine the effect of probiotic immersion to increase the growth of Asian redbtail catfish larvae. The research immersion larvae in probiotics at four levels, with controls and three replicates to immersion <i>Hemibagrus nemurus</i> larvae during the 60-day experiment.</p> <p>b The animal trial used was 600 <i>Hemibagrus nemurus</i> larvae with an average initial weight of 0.0077±0.0000 g and an average length of 0.77±0.00cm. Larvae were reared in</p>	<p>Presented in introduction section</p> <p>In the research method</p>

		aquarium with a stocking density of 50 larvae per aquarium	
Objective	13	The research question is whether the difference in immersion levels through probiotics added affects the growth rate, survival rate, cannibalism value. Therefore, the first objective of this study was to analyze the effect of immersion larvae in probiotics on the growth and survival rate. The specific hypothesis being tested was that immersion larvae with various levels of probiotics could improve the growth rate and survival of asian redbtail catfish larvae	In introduction section
Ethical statement	14	The Ethics Community Research and Community Service Universitas Riau approved the collecting and rearing of <i>Hemibagrus nemurus</i> larvae with the ARRIVE guidelines, which have been stated in the letter of grant No. 15693/UN19.5.1.3/AL.04/2024, May 15, 2024.	Presented in ethical statement
Housing and husbandry	15	The Fish Hatchery and Breeding Laboratory is located in the main campus area of the University of Riau, Simpang Baru, Pekanbaru 28293, Indonesia. Socially it interacts very well with the activities of lecturers and students in carrying out the learning process and research.	Presented in ethical statement
Animal care and monitoring	16	<p>a In this study, efforts were made to ensure the welfare of fish larvae during probiotic immersion and sampling. before immersion, the probiotic solution was prepared in a clean environment with adjustments to temperature and pH to minimize the risk of stress from sudden environmental changes. The larvae were gradually introduced into the probiotic solution with adequate aeration, and the immersion time was 10 minutes to prevent stress, accompanied by careful monitoring. Before sampling, the fish were fasted for 12 hours to clear their gastrointestinal contents, then anesthetized orally using clove oil before weighing. After all procedures, the fish were returned to their respective aquarium according to treatment and replication groups. This approach was designed to alleviate the suffering of experimental animals and comply with ethical standards for animal welfare.</p> <p>b During the research, there were no adverse events</p> <p>c This study did not have humane endpoints.</p>	Presented in research methods
Generalisability/ translation	18	The findings from this study on probiotic immersion in Asian redbtail catfish larvae suggest several implications for broader applications in aquaculture and potentially human biology. The observed improvements in growth rates and reduced mortality in catfish larvae exposed to probiotics may be indicative of similar outcomes in other fish	Presented in conclusion section

		species, particularly those raised in similar environmental conditions or those known to have comparable gut microbiomes. Fish soaked in probiotics will grow faster. However, if the probiotic is used on humans, its safety cannot be ascertained and further research is needed.	
Protocol registration	19	We state that a research protocol (including the research question, key design features, and analysis plan) was prepared before the study. This protocol was registered in methods.	Presented in research methods
Data access	20	Study data provided at https://doi.org/10.6084/m9.figshare.27282330.v1	Presented in the Figshare section
Declaration of interests	21	<p>a No competing interests were disclosed.</p> <p>b This study was conducted under the project entitled ‘Determination of the best type of probiotics to improve growth in baung fish seed production (<i>Hemibagrus nemurus</i> CV) from kampar river waters’. This research was funded by the Institute for Research and Community Service (LPPM) University of Riau, (Grant no. 15693/UN19.5.1.3/AL.04/2024)</p>	<p>Noted in the competing interests’ section</p> <p>Presented in the ethical statement section</p>