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Exploration of Halfmoon Betta Fish Tail Shapes Using Fan Pleats in an Evening Gown

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ABSTRACT - The beauty of nature, especially fauna, has become a source of inspiration in creating fashion designs. This exploration shows that elements from nature can be translated into innovative designs with high artistic value. This research explores the tail shape of the Halfmoon betta fish, which is known for its beauty and uniqueness, as inspiration in creating an evening gown using the fan-pleated technique. The purpose of this study is to create a new evening gown design that presents an elegant and unique character by applying the shape of the Halfmoon betta fish tail as the main design idea. The research method used is PPE (Planning, Production, and Evaluation). The planning stage involves exploring the shape and characteristics of the Halfmoon betta fish tail through the development of moodboard, mind maps, and detailed design sketches focusing on shape and color. The production stage applies the fan-pleated technique to the evening gown, while the evaluation stage involves feedback and suggestions from fashion experts regarding the final work. The results show that the application of the fan-pleated technique can aesthetically represent the shape of the betta fish tail and provide the gown with an elegant and unique appearance. In conclusion, exploring animal forms through fabric manipulation using the fan-pleated technique can be a source of innovation center of interest in evening gown design, highlighting the beauty of fauna in fashion.

Keywords: Evening gown, halfmoon betta fish, fan pleated technique.

INTRODUCTION

A fashion designer can derive inspiration for creating unique garments from various sources, one of which is the beauty of nature. The beauty of nature can serve as an important source of inspiration in design fashion (Suciningtyas & Russanti, 2022). Nature holds extraordinary beauty for all living beings within it. In addition to providing the physical needs essential for survival, nature also serves as an endless source of inspiration for artists in creating various works of art (Pangestika, 2019). Therefore, natural beauty can be incorporated into works of art and fashion to create creations that are both beautiful and captivating. In this context, one example of natural beauty from fauna that serves as the author's source of inspiration for an evening gown design is the betta fish.

The betta fish is a freshwater species originating from Southeast Asian countries such as Thailand, Malaysia, Brunei Darussalam, Indonesia, Vietnam, and Singapore (Achmad Zein, 2024). The betta fish also originates from the central and lower regions of the Mekong River in Thailand (Zhang et al., 2022). However, it is better known for its various domesticated forms, which are prized as ornamental fish and were originally bred for use in gambling contests, similar to cockfighting (Kurniawan et al., 2021).This fish is characterized by its beautiful fins and its aggressive nature in defending its territory. Betta fish come in various tail types, including crown tail, halfmoon or circular tail, plakat (short tail), halfmoon plakat (a combination of short and halfmoon tail), double tail, rounded tail, spade tail, and slayer tail (Kurniawan et al., 2021). The betta fish is well known for its beautiful colors such as red, blue, green, yellow, and various unique color combinations and it is also recognized for having a higher level of intelligence compared to most

other freshwater fish. The betta fish is one of Indonesia's ornamental freshwater species that possesses distinctive characteristics, including its tendency to fight with other fish of the same or different species within the same family (Kurniawan et al., 2021)

Betta splendens, commonly known as the Siamese fighting fish or "betta," is a freshwater species well-known for its physical diversity and aggressive behavior. Over more than 600 years of domestication, this fish has developed variations in color, body size, and fin shape (Adrianto et al., 2024). The body color of the betta fish is influenced by both genetics and the environment, making it popular among ornamental fish enthusiasts (Adrianto et al., 2024)_. One of the most admired types is the Halfmoon betta fish/Betta splendens (Muhajir et al., 2021). The Halfmoon betta fish serves as the source of inspiration explored by the author in designing an evening gown, due to its unique beauty and distinctive tail. According to Axelrod, when viewed from the side, the fins of the Halfmoon betta fish (Betta splendens) resemble a half-moon shape, as the fins and tail appear to merge seamlessly.

The evening gown was developed into a new creation by exploring the form of the Halfmoon betta fish tail as the central decorative element or center of interest, designed using the fan pleated technique. Folding is a fabric manipulation technique that has been used for thousands of years (Huang, 2021). In the 2016 Manus X Machina exhibition, Andrew Bottun stated that this technique plays an important role in the world of haute couture, comparable to other garment-making techniques (Huang, 2021). Pleated fabric is a type of material commonly used in various costume designs for different purposes. Nowadays, pleated fabrics are typically made by hand or processed in production facilities in Ho Chi Minh City and other cities. However, the pleating styles produced in these facilities are usually limited to a few basic and simple patterns (Nguyen et al., 2022). Hand fan is a traditional air-cooling device. The shape of a hand fan is semicircular (when opened) and features multiple pleats. Some basic types of hand fans include folding fan, cockade, brisé, hand screen, Jenny Lind, comfyhold, trifold, and thumbhold (Widayathi & Riyanto, 2014). The type of fan used by the author as inspiration is the folding fan, which is made with a frame covered by a pleated material, creating folds across its surface.

According (Florencia, 2021), pleats are a folding technique in fashion design in which the fabric is repeatedly folded and then pressed or sewn to make the folds permanent. In general, pleats are usually applied to the lower parts of garments, such as skirts or dresses with pleated hems. However, in this design, pleats are used as the center of interest. The use of pleats in clothing gives a visually appealing and elegant impression.

Previous studies have emphasized the application of pleated techniques in evening gowns or formal dresses. For example, Florencia discussed the use of pleats in evening gowns to enhance the aesthetic value and visual effects of the dress (Florencia, 2021). The pleated technique was applied to add dimension, texture, and decorative touches, resulting in gowns that are elegant and visually appealing. However, Florencia's research did not integrate inspiration from natural forms or specific fauna into the dress design, so the pleats used were decorative and general in nature.This study seeks to fill this gap by exploring the shape of the Halfmoon betta fish tail as a source of inspiration in creating an evening gown using the fan-pleated technique. This research aims to create a new design by exploring the form of the Halfmoon betta fish tail through the fan pleated technique as the center of interest in the creation of an evening gown.

METHOD

The type of research used in this study is Research and Development (R&D). Research and development is a process or series of steps carried out to create and develop new products (Rustandi et al., 2022). This research applies the PPE (Planning, Production, Evaluation) development model developed by Richey and Klein, which states that the study focuses on design and developmental research through a comprehensive process that includes initial analysis up to the final stages namely planning, production, and evaluation (Qamaliah Harahap et al., 2024). This model emphasizes three core aspects: planning the design direction, through a moodboard, managing the production process, and evaluating the final product (Sodhar, 2025).

FIGURE 1. Development flow of the PPE model.

In the planning stage, the author analyzed the source of inspiration from the Halfmoon betta fish tail and the fan pleated technique for the evening gown. The planning process began with exploring the shape and characteristics of the Halfmoon betta fish tail, including the forms and colors to be applied in the evening gown design. This exploration was further developed using a moodboard as a reference and a mind map to determine the journal title, along with the creation of design sketches with detailed explorations aligned with the planning concept derived from the moodboard and mind map.

The second stage, production, involved creating the evening gown using the fan pleated technique, inspired by the form of the Halfmoon betta fish tail. This stage included the process of constructing the evening gown with the fan pleated design.

The final stage, evaluation, focused on assessing the completed product. This evaluation aimed to identify the strengths and weaknesses of the design so that improvements could be made to enhance the final product.

RESULTS AND DISCUSSION

The comparison between the previous work by Widyati (2013) and the current study shows a significant development in the application of the fan pleated technique in evening gown design. In Widyati's work, titled "Fan Pleated in Award Gown", the folding fan pleat technique was applied extensively across the entire garment surface to create volume and a dramatic effect, emphasizing the structural shape of the folding fan. The pleats were arranged in layers from the bodice to the skirt, giving the gown a grand and majestic appearance. The main focus of the gown was on the visual exploration of the pleating technique as the primary design element, without conveying a deeper conceptual meaning.

In contrast, the current study applies the fan pleated technique with a more conceptual and modern approach. The same folding fan pleats are positioned from the waist to the bodice as the center of interest and are combined with sequin embellishments patterned to resemble fish fins. This application not only enhances the aesthetic value through texture and shimmer but also represents the meaning of luxury and elegance, which are the main concepts of the design.

In this research, creating a new design required several stages, organized using the PPE (Planning, Production, Evaluation) development model. This model was applied to ensure that each step in the design development process was structured and carried out effectively. The following is an explanation of each stage.

Planning

This stage involves activities related to creating a product plan, starting with analyzing the shape of the Halfmoon betta fish tail, which will serve as the center of interest for the evening gown. The tail has an aesthetic value, characterized by its wide, half-moon shape. This inspiration serves as the foundation for developing a design that appears luxurious and unique.

Next, the form of the Halfmoon betta fish tail is explored using the fan pleated technique. The fan pleated technique was chosen to create volume and dimensional effects that resemble the Halfmoon betta fish tail. This technique forms folds that enhance the garment's texture and provide a dynamic visual appearance. The steps involved are as follows.

Moodboard

The purpose of creating a mood board is to establish direction, goals, and guidelines for developing a themed work, ensuring that the creative process remains aligned with the chosen concept. In its creation, a mood board serves as a space to capture ideas and sources of inspiration relevant to the theme and objectives of the work. Various themes can be used as sources of ideas during the creative process, helping to strengthen the concept and maintain both the visual consistency and the meaning of the final piece (Ghurub Bestari, 2016). Typically, a moodboard consists of a collection of photos or sketches related to colors and shapes associated with the clothing. The process of creating a design using a moodboard functions as both a medium and a tool for developing psychomotor skills for designers or individuals studying fashion, particularly in arranging various image elements, creating designs, and producing works. In this moodboard, the source of inspiration the Halfmoon betta fish, the technique to be used, and the color palette are presented. It serves to guide the style and aesthetics of the evening gown design based on the exploration of the Halfmoon betta fish tail.

FIGURE 2. Moodboard.

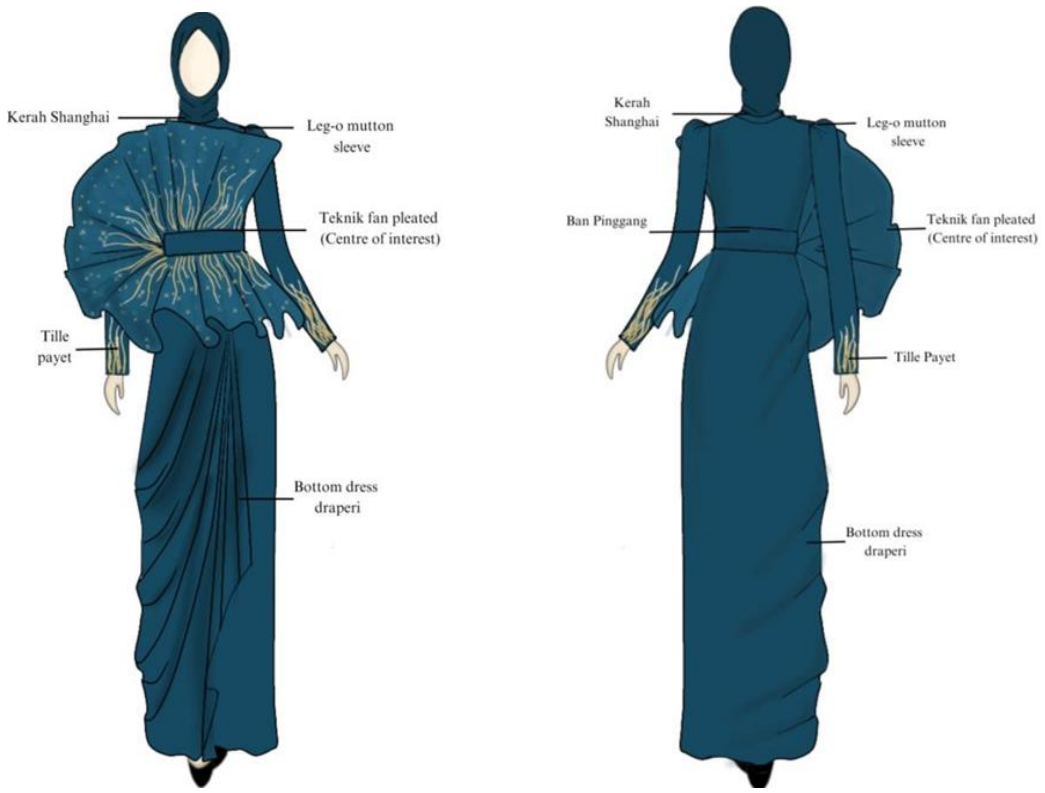
Mind Mapping

Mind mapping was created to help the author determine the design theme for the evening gown. Mind mapping is a creative step that assists individuals in generating many interesting ideas and facilitates the learning and research planning process. A mind map is a method used to express various ideas from one's thoughts into a creative and structured visual form. Through this technique, ideas and plans that exist in a person's mind can be illustrated clearly and easily understood. Mind maps can also be used to create flowcharts, concept maps, or brainstorming diagrams. Essentially, a mind map contains a main idea at the center, which is then connected to smaller, related ideas branching out from it. This approach transforms long and complex information into colorful, organized, and easy-to-remember diagrams that align with the brain's natural way of organizing and processing information (Suartini, 2013).

FIGURE 3. Mind mapping.

Product Design

At this stage, the author created the evening gown design based on the shape of the Halfmoon betta fish tail, explored using the fan pleated technique as the center of interest, and adorned with gold sequin tulle to give a luxurious impression. The following is the garment design referring to the results of the planning concept.



(a) (b)

FIGURE 4. (a)Front view of the design, (b) back view of the design.

TABLE 1. Detailed exploration of the center of interest in the garment.

Aspect	Exploration Details	Expected Results
Halfmoon Betta Fish Tail Shape	Analyzing the characteristics of the Halfmoon betta fish tail involves observing its distinctive features, such as its gracefully curved shape and fan-like form. These features not only define the visual appeal of the fish's tail but also serve as essential elements translated into the evening gown design, providing both structural inspiration and aesthetic guidance to create a garment that highlights the elegance of the center of interest inspired by the Halfmoon betta fish tail.	Resembling the original shape of the betta fish tail, it creates a dramatic and luxurious impression on the garment, capturing attention as the center of interest.

Aspect	Exploration Details	Expected Results
Fan Pleated Technique	Using the fan pleated technique to create accents that resemble fish fins with structured folds.	The pleats produce a stable structure that resembles fish fins and function as decorative accents on the garment.
Material	The selection of sturdy fabrics is essential to maintain the pleats, such as organza and crinoline, with crinoline used as a stiffener to support the shape of the fan pleated design.	The combination of these two materials allows the fan pleated accents to aesthetically resemble the shape of the Halfmoon betta fish tail, creating a dramatic and dynamic appearance that is well-suited for an evening gown.
Color	The Halfmoon betta fish features colors such as red, blue, green, yellow, and unique combinations. The researcher explored this by using emerald blue fabric, which reflects the iconic colors of the Halfmoon while remaining suitable for an evening gown.	The creation of an elegant, shimmering, and eye-catching evening gown is the final outcome of a design exploration inspired by the beauty of the Halfmoon betta fish tail. This gown not only highlights luxury through the use of materials and the structured fan pleated technique but also conveys a graceful and dynamic impression through its shimmering colors and pleated details that resemble the fish's tail. The harmonious combination of shape, texture, and color makes this garment truly captivating and able to stand out as the center of attention at any evening event.

Production

The production stage involves the process of applying the planned concept into the physical form of the garment.

1. Pattern Making and Garment Construction
   The pattern is created according to the planned design, followed by cutting the fabric and sewing all the pattern pieces together to form the dress.
2. Creating the Fan Pleated Technique
   The exploration of the Halfmoon betta fish tail shape using the fan pleated technique becomes the main focus of the production stage. The researcher uses a table to explain the detailed steps of the technique, as shown below.

TABLE 2. The detailed steps of the technique.

Step	Explanation
Cutting Fabric	Cutting organza and crinoline fabric according to the required measurements. For the creation of the fan pleated technique, 3 meters of organza and crinoline fabric were used.
Forming the pleats	Fold the organza fabric and insert the crinoline fabric, then continue folding the fabric gradually to form a shape that resembles a fan.

Step	Explanation
Press pleats	Ensure that the folds are stable and permanent by pressing them with an iron and securing them with pins or basting stitches
	 **FIGURE 5**. The pleats secured with pins.
Sewing	Sew the basted folds to secure and lock them in place.
	 **FIGURE 6**. the pleats after being sewn
Attaching the sequin tulle	Attaching the soldered sequin tulle. The attachment process is carried out carefully and meticulously to ensure that each sequin is positioned accurately, creating an even sparkling effect and enhancing the luxurious appearance of the garment.
	 **FIGURE 7**. The beading attached to the pleats.
Creating the waistband	Creating a waistband integrated with the fan pleated design is an important stage in the production of this fan pleated detail. The waistband serves as both a support and a binder for the fan pleated accents, ensuring that the fabric folds are neatly arranged and remain stable in the desired position. The process involves precise measurements, cutting the fabric according to the waistband size, and accurate stitching so that the fan pleated design integrates perfectly. By

Step	Explanation
	combining the waistband and fan pleated detail, it can be effectively applied to an evening gown.

FIGURE 8. The appearance of the waistband installation.

Product Results

In this work, the shape of the Halfmoon betta fish tail serves as the center of interest, created using the fan pleated technique. The fan pleated technique in this garment combines the beauty of natural fauna with modern design to produce an elegant and uniquely distinctive gown. The final result is an evening gown featuring a center of interest accent that is not only visually captivating but also demonstrates creative exploration in fashion design.

(a) (b) (c)

FIGURE 9. (a) Front view of the finished product (b) Side view of the finished product (c) Fan pleated detail as the center of interest.

Evaluation

The final stage in this process is evaluation, which aims to assess the product through expert review. The evaluation is conducted to identify any shortcomings in the product, thereby improving its feasibility and quality. Data for this stage were collected using observation sheets provided to fashion experts. Through this instrument, the experts provided feedback regarding the alignment between the inspiration from the Halfmoon betta fish, the application of the fan pleated technique, and the garment design with the final product outcome.

One of the evaluations was provided by a fashion education lecturer at Universitas Pendidikan Indonesia, Mandhe Sekar Nurindah, S.Ds., M.Ds., who is the lecturer of the Adhibusana. This course includes an assignment to create evening gowns, so she has the expertise to assess the evening gown designs produced in this research. who offered feedback and suggestions on the design and product submitted by the researcher, stating that "the exploration of garniture on the fabric needs to be improved." This input emphasizes further development in the processing and application of garniture elements on the fabric to enhance the aesthetic value of the design. This evaluation serves as an important guide to expand creativity in selecting, placing, and applying garniture techniques, thereby strengthening the design concept and producing a more innovative and visually appealing work.

The statements regarding the alignment between the mentioned aspects and the final product can be seen in Table 3.

TABLE 3. Instrument.

Statement	SD	DS	S	A	SA
The fan pleated technique was chosen because it is suitable and effectively visualizes the shape of the Halfmoon betta fish tail.					✓
The visualization of the Halfmoon betta fish tail shape in the evening gown design was successfully realized, in accordance with the planned design.					✓
The fan pleated technique has been applied optimally in the garment, both in terms of its construction and placement.					✓
The visualization of the Halfmoon betta fish tail shape in the evening gown design was successfully achieved, in accordance with the planned design.			✓		
This garment has a high aesthetic value and is able to attract consumers as an elegant and unique evening gown.				✓	

Explanation of options:
SD: Strongly Disagree
DS: Disagree
S: Sufficient
A: Agree
SA: Strongly Agree

(a) (b)

FIGURE 9. (a) The garment results after being evaluated by the lecturer. (b) The result of adding garniture was achieved by embellishing the waistband with sequins.

CONCLUSION

This study successfully integrates the beauty of nature, particularly the form of the Halfmoon Betta fish's tail, into an evening gown design through the application of the fan pleated technique. The research process, using the PPE method (Planning, Production, and Evaluation), demonstrates that inspiration from fauna can be effectively translated into fashion design, resulting in a creation that stands out not only visually but also in its high aesthetic and artistic value. For future research, it is suggested that this concept be further developed in the field of fashion education, for instance by creating curricula that encourage students to explore and apply natural elements as sources of inspiration in the design process. Moreover, in the realm of haute couture, the application of the fan pleated technique requires a high degree of precision and patience to achieve results that appear refined and artistically valuable. Overall, this research opens new directions for the fashion world toward a more sustainable and nature-inspired approach. In this way, designers can create fashion works that are not only beautiful and unique but also reflect the harmony between human creativity and the beauty of nature.

REFERENCES

Achmad Zein (2024)_ANALISIS STRATEGI PEMASARAN BUDIDAYA IKAN CUPANG BETTA FISH UNTUK MENINGKATKAN VOLU. (n.d.).

Adrianto, H., Ritunga, I., Silitonga, H. T. H., & Ibrahin, S. N. M. M. (2024). Predation Time for Halfmoon and Multicolor Plakat of Varieties of Betta Fish Against Aedes aegypti Larvae in Different Water Volume. Indonesian Journal of Tropical and Infectious Disease, 12(3), 180–189. https://doi.org/10.20473/ijtid.v12i3.56498

Florencia, A. (2021). Penerapan Teknik Pleated Pada Busana Pesta Evening Gown. TEKNOBUGA: Jurnal Teknologi Busana Dan Boga, 9(1), 33–46. https://doi.org/10.15294/teknobuga.v9i1.24927

Ghurub Bestari, A. (2016). PENGARUH PENGGUNAAN MEDIA MOOD BOARD TERHADAP PENGETAHUAN DESAIN BUSANA PADA MAHASISWA PENDIDIKAN TEKNIK BUSANA. Jurnal Inovasi Teknologi Pendidikan, 3(2), 121–137.

Huang, T.-C. (2021). Idea Exchange in The Pleats- The Pleating Workshop as a Research Method. Journal of Textile Science & Fashion Technology, 7(4), 1–7. https://doi.org/10.33552/jtsft.2021.07.000667

Kurniawan, D. B., Octaviano, A. L., & Pramana, I. M. B. (2021). Imajinasi Keindahan Ikan Cupang Hias Dalam Fotografi Seni. Retina Jurnal Fotografi, 1(2), 147–156. https://doi.org/10.59997/rjf.v1i2.794

Muhajir, Agustini, M., & Noor, M. T. (2021). Perbedaan Pertumbuhan Berat Mutlak Benih Ikan Cupang Halfmoon (Betta splendens) Akibat Pemberian Jenis Pakan Alami Yang Beragam. Jurnal TECHNO-FISH, 5(2), 61–75.

Nguyen, T. H. N., Nguyen, T. L., Nguyen, M. N., & Tran, T. T. L. (2022). Research on the Pleating Technique by Using Cardboard Pleat and Kraft Paper. Journal of Technical Education Science, 72A, 73–86. https://doi.org/10.54644/jte.72a.2022.1284

Pangestika, G. (2019). Pesona Alam Sebagai Ide Karya Seni Lukis. Computers in Human Behavior, 8–9. http://dx.doi.org/10.1016/j.chb.2016.05.008

Qamaliah Harahap, I., Antoni Musril, H., Derta, S., & Artikel, S. (2024). Perancangan Media Pembelajaran Informatika Berbasis Android Menggunakan Smart Apss Creator Informasi Artikel A B S T R A K. Intellect : Indonesian Journal of Innovation Learning and Technology, 03(01), 1–15. https://doi.org/10.57255/intellect.v3i1.302

Rustandi, A., Haryaka, U., & Grasia, E. (2022). Pengembangan Media Pembelajaran Game Edukasi Menggunakan Model PPE Pada Mata Pelajaran Pengenalan Nama Hewan di TK Negeri 10 Kota Samarinda. Jurnal Ilmiah Jendela Pendidikan, 11(2), 148–157. https://doi.org/10.55129/jp.v11i2.1633

Sodhar, I. H. (2025). The ppe model: a strategic response to educational disruptions in challenging times. 1(June). https://doi.org/10.29270/JBS.19.1(25).04

Suartini, K. (2013). Pengaruh Metode Mind Mapping terhadap Pemahaman Mahasiswa dalam Membuat Kerangka Berpikir pada Penyusunan Proposal Penelitian. Edusains, 1(1), 91. http://www.mind-mapping.co.uk

Suciningtyas, D., & Russanti, & I. (2022). OE MATAN MALADONG SEBAGAI INSPIRASI PENGEMBANGAN DESAIN BUSANA PESTA. In Jurnal of Fashion and Textile Design Unesa (Vol. 3).

Widayathi, D., & Riyanto, A. A. (2014). Fan Pleated In Award Gown. Fesyenpersfektif, 471, 1–17. http://jurnal.upi.edu/fesyenpersfektif/view/3393/fan-pleated-in-award-gown.html

Zhang, W., Wang, H., Brandt, D. Y. C., Hu, B., Sheng, J., Wang, M., Luo, H., Li, Y., Guo, S., Sheng, B., Zeng, Q., Peng, K., Zhao, D., Jian, S., Wu, D., Wang, J., Zhao, G., Ren, J., Shi, W., … Hong, Y. (2022). The genetic architecture of phenotypic diversity in the Betta fish (Betta splendens). Science Advances, 8(38). https://doi.org/10.1126/sciadv.abm4955