

INTRODUCTION

Siamese fighting fish (*Betta splendens*) are commonly known to be one of the more **aggressive** fish in the world despite their aesthetic figure and plentiful colours. This was first reported in the wild in freshwater ricefields of Thailand in 1400 AD [10] years ago and was observed to have aggressive territorial behaviours towards other males of its species. With their aggression noticed by natives, they have been bred and domesticated to battle in gambling, **fighting cockpits**, often to their death [1]. Betta fish have moved from a fighting purpose to becoming more ornamental nowadays.

This raises the question: **How has domestication influenced the aggressive behaviours and social interactions of B. splendens fish?** Much like how dogs have specific playful behavioural characteristics to demonstrate their domestication, how would betta fish differ?

BEHAVIOURS

They get **excited** when watching a fight.

If two male B. splendens fight in one tank and a separate B. splendens **spectates** in another tank, the separated fish will get **excited**. The separated fish will have a better chance of winning a fight afterwards [6].

Fighting like a **dance** choreography

Two male B. splendens can fight for a long enough duration to have both their battles and genes **synchronised**. This allows their fight to continue for one hour rather than 20 min. [5]

Domesticated

Vibrant colors and patterns including blues, reds etc. They lack wild features (streaks andnacreous patches) [7]

Bred to be longer and **ornamental**, which can impact swimming efficiency and vulnerability [10]

Less responsive to stress in familiar or controlled settings, possibly due to regular human interaction [9]

Constant high levels of **aggression**, often for human entertainment. Make use of opercular display as an honest sign of aggression [9]

Rely on provided food, may have **diminished** hunting instincts [9]

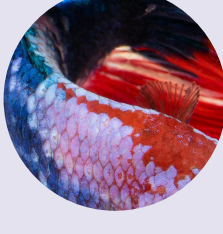
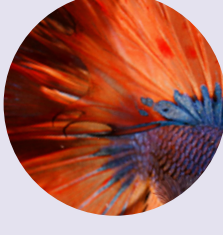
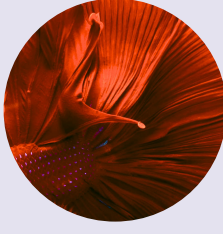
B. splendens were bred to fight. However, does this trait translate outside of fights?

They are **ashamed** of losing.

Male B. splendens that have lost a fight will make mating advances to female fish that did not watch the fight, presumably because females prefer stronger males that can **defend** their future nests. This shows that they are aware of their spectators and change their behaviour if they win or lose [6].

Aggressive and tactical **courting**

Studies show that male B. splendens prefer **smaller** females, while females prefer bigger males. This is because females tend to be less deadly (biting other bettas and eating their own eggs) when smaller, while males will be stronger in defending their nests against other B. splendens. This is the **opposite** relation compared to most other fish. [1]



DOMESTICATION

B. splendens were selectively bred for their **physical attributes**, with a preference towards a strong and large body with hard scales, big mouths, but smaller fins as protection against bites of the opponent. [5]

Colourisation is not the main priority but does contribute to their overall appearance as they have an influence on their ornamental aspect. [5]

The ability to bite their opponents' vulnerable targets, such as swimmers and tail fins are also a very important asset, as this will hinder the **stability** and **kicking** ability of their opponent. [5]

Breeders that bred B. splendens were often driven to have more aggressive fish in order to use them in fighting cockpits for gambling games. [10]

To this day, the fish are bred to be **bigger** and more aggressive. [10]

Even though B. splendens were bred to fight in the beginning, they also began breeding them for **ornamental** purposes in the 20th century, becoming one of the most popular pet fish. [10]



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Wild

Subdued colours (dull greens, browns, and greys) to facilitate camouflaging

Shorter fins are practical for **efficient** swimming

Reacts variably to **environmental** changes

Aggressive during mating and **territorial** defense

Efficient **hunters**, well-adapted to their habitat

RESEARCH METHODOLOGY

This poster presents a **literary study** of several academic sources to explore the variations between wild and domesticated B. splendens fish, with an emphasis on breeding and their physical changes. The synthesis is based on a curated selection of peer-reviewed articles, historical breeding records, and observational studies that document the aggressive displays and physical features unique to both the **wild and domesticated** B. splendens.

DISCUSSION FURTHER RESEARCH

Domestication in B. splendens has actively changed their genomes and genes, which has **altered** their appearance and behaviours. Specific physical attributes have actively made the fish more aggressive, such as vivid colours being attributed to **aggressive behaviour**. While less noticeable, B. splendens interact with each other cautiously, such as keeping an eye out for other B. splendens that observe fights and how they fight one another.

This shows how humans are incredibly influential in B. splendens’ development. Despite common domesticate traits, since these B. splendens fish were bred to fight, they have developed **different** traits and behaviours compared to most other domesticated animals. This emphasises the necessary precautions that must be taken to ensure that these animals are taken care of **ethically** and **appropriately**.

Much is still unknown about B. splendens. Most research has been conducted on **male** B. splendens, therefore not much can be said about the females despite recent studies showing a similar level of aggression. Their domestication path differs significantly from other animals, so **more comparisons** must be drawn to understand this animal further. The noted behaviours must also be compared against wild B. splendens because most are tested on their **domesticated** counterparts.

Fated to Fight
the domestication of BETTA FISH

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