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Detailed Taxonomic Description and Molecular Confirmation of *Thryssa encrasicholoides* (Clupeiformes: Engraulidae) From the Andaman Islands

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INTRODUCTION & AIM

- ✓ The anchovy genus *Thryssa* Cuvier 1829 (Clupeiformes: Engraulidae) is characterised by a compressed body; sharply keeled prepelvic and postpelvic scutes; a small spine-like scute just before dorsal fin origin; a pointed maxilla tip, jaw teeth small, not canine-like; upper pectoral-fin ray not extended as a filament; and anal fin long, with 25–45 branched rays.
- ✓ The genus is widely distributed in the Indo-West Pacific region with 35 valid species commonly available in marine and/or brackish water.
- ✓ *Thryssa encrasicholoides* (Bleeker, 1852), commonly known as the False baelama anchovy, has had its taxonomic status and distribution historically misinterpreted across the Indo-West Pacific due to close similarities with *T. baelama*, leading to frequent misidentification.
- ✓ Based on specimens of *T. encrasicholoides* obtained from South Andaman Island, a detailed morphological analysis was done along with DNA barcodes from a short standardised mitochondrial gene, Cytochrome c oxidase subunit 1 (COI).
- ✓ Through the integration of morphological and molecular approaches, this study seeks to resolve previous misidentifications and contribute to a clearer understanding of marine fish diversity in the region.

METHOD

- ✓ For this study, 5 fresh specimens were collected by artisanal fishermen from Corbyn's Cove, South Andaman (11°38'28.2"N 92°44'52.5" E).
- ✓ Methods of counting and measuring were followed from Hata et al. (2015). Species identification was performed based on Wongratana et al. (1999) and Hata and Koeda (2020).
- ✓ The specimens were deposited in the museum of the National Zoological Collection of the Zoological Survey of India, Andaman & Nicobar Regional Centre, India (Registration no. ZSI/ANRC/M/31598).
- ✓ DNA was extracted using the QIAGEN DNeasy Blood and Tissue Kit. The cytochrome c oxidase I (COI) gene was amplified using the primer pair Fish F1 (5' TCAACCAACCACAAAGACATTGGCAC 3') and Fish R1 (5' TAGACTTCTGGGTGGCCAAAGAATCA 3').
- ✓ Amplified PCR products were sequenced using the Sanger method.
- ✓ A 594 bp long sequence was obtained and submitted to GenBank (Accession Number: PV936664).
- ✓ Phylogenetic analysis and Kimura two-parameter distance estimation (Kimura 1980) were carried out in MEGA X version 10.2.6 (Kumar et al. 2018) using both sequences generated in this study and reference sequences obtained from the NCBI database.

RESULTS & DISCUSSION

Table 1: Comparison of meristic characters of *T. encrasicholoides*

Characters	Present Study (Andaman) [n=5]	Krishnan and Mishra 1994 (Andaman) [n=1]	Hata and Koeda 2020 (Taiwan) [n=2]	Wongratana et al. 1999 (Western central Pacific) [n= –]
Dorsal-fin rays	iii +11	iii +11	iii +11	–
Anal-fin rays	iii +26/27	iii +25	iv +29/26	– + 24–28
Pectoral-fin rays	i +12	i +12	i +13	–
Pelvic-fin rays	i +6	i+ 6	i + 6	–
Caudal Fin Rays	10+10	–	–	–
Branchiostegal Rays	11/12	–	14/15	–
*Pre Pelvic Scutes	6/8	6	6/8	4–9
Post Pelvic Scutes	8	9	8/9	7–10
Upper Gillraker	15	15	15	–
Lower Gillraker	19/20	18	20/21	18–26

#Roman numerals indicate unbranched fin rays; Arabic numerals indicate branched rays.

*Scute immediately behind isthmus not included.

RESULTS & DISCUSSION

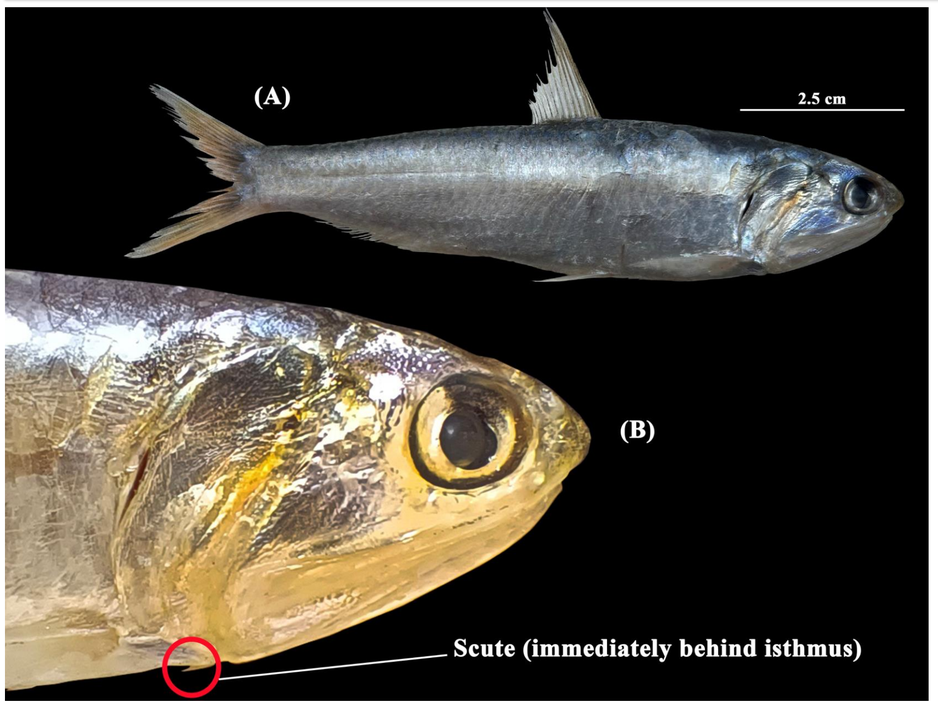

Fig. 1. Fresh specimen of *T. encrasicholoides* from South Andaman, India

Table 2: Morphometric characters of *T. encrasicholoides* collected from Andaman

Characters			
Total Length (mm)		**109.7–113.8**	
Weight (g)		**9.19– 11.25**	
% SL			
Body Depth	22.9 ± 0.2	Pre Anal Length	66.6 ± 0.9
Head Length	27.0 ± 0.2	Dorsal Fin Length	20.0 ± 0.4
Head Depth	18.7 ± 0.2	Pectoral Fin Length	17.0 ± 0.2
Head Width	10.1 ± 0.2	Ventral Fin Length	14.3 ± 0.8
Snout Length	5.3 ± 0.2	Anal Fin Length	12.8 ± 0.3
Eye Diameter	5.9 ± 0.1	Caudal Fin Length	23.6 ± 0.4
Inter Orbital Length	7.4 ± 0.1	Dorsal Base Length	10.9 ± 0.3
Post Orbital Length	14.3 ± 0.1	Pectoral Base Length	4.2 ± 0.2
Upper Jaw Length	24.3 ± 0.1	Ventral Base Length	1.8 ± 0.1
Lower Jaw Length	20.0 ± 0.1	Anal Base Length	23.5 ± 0.3
Pre Dorsal Length	48.4 ± 0.4	Caudal Peduncle Length	10.2 ± 1.0
Pre Pectoral Length	27.0 ± 0.5	Caudal Peduncle Depth	9.9 ± 0.2
Pre Ventral Length	42.9 ± 0.5		
% HL			
Head Depth	69.3 ± 0.8	Inter Orbital Length	27.5 ± 0.7
Head Width	37.6 ± 0.8	Post Orbital Length	52.9 ± 0.5
Snout Length	19.8 ± 0.6	Upper Jaw Length	90.2 ± 0.6
Eye Diameter	21.7 ± 0.5	Lower Jaw Length	74.3 ± 0.8

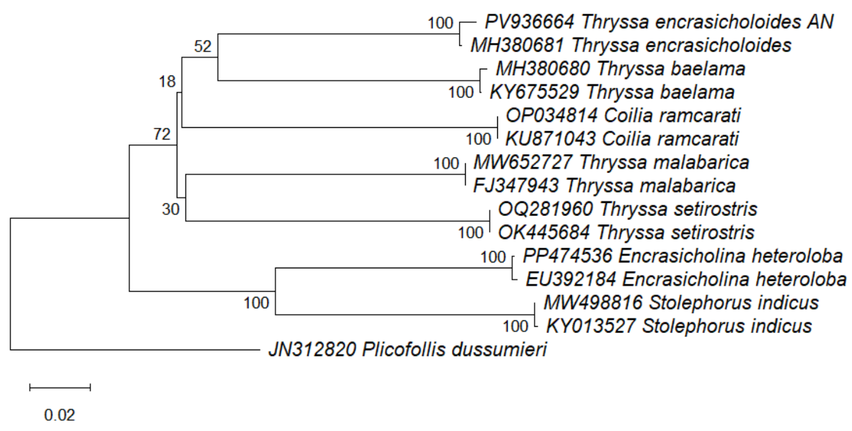

Fig 2. Neighbour Joining tree reconstruction based on a partial region of the COI sequence of *T. encrasicholoides*, Andaman isolate.

CONCLUSION

- ✓ Although *T. encrasicholoides* closely resembles *T. baelama* in having fewer prepelvic scutes and a short upper jaw, it can be distinguished by the presence of weakly developed scutes just behind the isthmus and a blunt posterior tip of the maxilla.
- ✓ The meristic values obtained in the present material correspond closely with the diagnostic characters outlined by Hata and Koeda (2020)
- ✓ The COI sequence obtained in this study clustered with confirmed *T. encrasicholoides* sequences in the neighbour-joining tree with strong bootstrap support, indicating that the Andaman specimens lie within the recognised genetic range of the species.

REFERENCES

i. Wongratana, T., Munroe, T. A., & Nizinski, M. S. (1999). Order *Clupeiformes*. Engraulidae, anchovies. In K. E. Carpenter & V. H. Niem (Eds.), *FAO species identification guide for fishery purposes: The living marine resources of the Western Central Pacific* (Vol. 3, pp. 1698–1753). FAO.

ii. Hata, H., & Koeda, K. (2020). Thrissina encrasicholoides (Actinopterygii: Clupeiformes: Engraulidae): first record from Taiwan and northernmost record of the species. Acta Ichthyologica et Piscatoria, 50, 107-111.