

# First Record of the Thornback Cowfish *Lactoria fornasini* (Ostraciidae, Tetraodontiformes) from Korea

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**ABSTRACT** One specimen (103.7 mm SL) of *Lactoria fornasini*, belonging to the family Ostraciidae, collected from the coastal waters of Jeju Island, marks the first record of the species from Korea. It is characterized by having a strongly curved spine on the dorsal ridge, a pair of short spines in front of the eyes, a pair of spines projecting posteriorly from the rear end of the ventrolateral ridge, and wavy blue lines on the body. We add this species to the Korean fish fauna and propose its new Korean name, "Jul-mu-nui-ppul-bok."

**Key words** : Ostraciidae, *Lactoria fornasini*, first record, Jeju Island, Korea

## INTRODUCTION

The genus *Lactoria* (Jordan and Fowler, 1902), belonging to the subfamily Ostraciinae of the family Ostraciidae, is widely distributed in tropical waters of the Atlantic, the Indian, and the Pacific Oceans (Nelson, 2006). This genus is characterized by having both a pair of short sharp spines in front of eyes and a sharp spine projecting posteriorly from the rear end of each ventrolateral ridge (Matsuura, 2001). Three species have been reported from the coastal waters of Japan, of which only one species, *L. cornuta*, has been reported from Korea (Mori and Uchida, 1934).

Recently, one specimen of *L. fornasini* was collected by a set net from the coastal waters of Jeju Island, Korea. We described its morphological description of this species based on the specimen and newly added it to the Korean fish fauna.

Counts and measurements of this specimen were followed by the method of Hubbs and Lagler (1964). The examined specimen was deposited at the Fish Genetics and Breeding Laboratory, Cheju National University (CNU), Korea.

***Lactoria fornasini* (Bianconi), 1846**  
(New Korean name: Jul-mu-nui-ppul-bok)  
(Fig. 1; Table 1)

*Ostracion fornasini* Bianconi, 1846: 115 (type locality: Mozambique).

*Lactoria fornasini*: Matsuura in Masuda *et al.*, 1984: 362 (Japan); Okamura *et al.*, 1985: 633, 746 (Japan); Smith, 1986: 892 (Indo-West Pacific, east African coast); Myers, 1999: 287 (Micronesia); Randall and Lim, 2000: 648 (South China Sea); Matsuura, 2001: 3949



Fig. 1. *Lactoria fornasini* (Bianconi), CNU20080710, 103.7 mm SL, set net, Wimi-ri, Nawon-eup, Seogwipo-si, Jeju-do, Korea. A: lateral view, B: dorsal view.

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**Table 1.** Comparison of morphological characters of *Lactoria fornasini*

Morphological characters	Present study	Okamura <i>et al.</i> (1985)	Leis and Moyer (1985)
Standard length (mm)	103.7 (n=1)	75.0 (n=1)	15.5 ~ 16.0 (n=2)
Dorsal fin rays	9	9	9
Pectoral fin rays	10	10	11
Anal fin rays	9	9	9
Caudal fin rays	10	—	10

(north Australia); Hayashi in Nakabo, 2002: 1415 (Japan); Mundy, 2005: 531 (Hawaii).

**Material examined.** CNU20080710, one specimen, 103.7 mm in standard length (SL), Wimi-ri, Nawon-eup, Seogwipo-si, Jeju-do, Korea, with set net, 10 July 2008.

**Description.** Counts for the present specimen are shown in Table 1.

Measurements are presented as a percentage against SL: body depth 49.7; upper body width 28.3; lower body width 49.4; head length 29.9; upper jaw length 4.3; snout length 24.4; eye diameter 9.5; interorbital width 19.7; predorsal fin length 60.7; prepectoral fin length 29.9; preanal fin length 75.6; Length of longest dorsal fin ray 18.5; Length of longest pectoral fin ray 20.3; Length of longest anal fin ray 17.1; caudal peduncle depth 9.1; caudal peduncle length 15.6; caudal peduncle width 4.8; caudal fin length 23.8; dorsal fin base length 9.6; pectoral fin base length 10.0; anal fin base length 8.5; spine length in front of eyes 8.7; spine length on ventrolateral ridge 13.2; spine length on the dorsal center 9.4.

Body covered with rigid carapace, pentagonal in cross section; a largely and strongly curved spine on middle part of dorsal ridge; a pair of spines projecting from eyes; a pair of spines present on the ventrolateral ridge; mouth small; upper jaw equal to lower; teeth in both jaws regular and bluntly pointed; lower body width more extensive than upper body width; no pelvic fins.

**Color when fresh.** Body yellowish brown with numerous wavy blue lines; pectoral, dorsal and anal fins yellow; caudal fin yellow with several vertical blue lines; ventral part white; spines in front of eyes brown with white posterior margin; the end of spine on back and ventrolateral ridge white.

**Color after preservation.** Body and head grey-brownish with numerous wavy black lines; all fins white; spines white; the base of dorsal fin black.

**Distribution.** Known from Indo-West Pacific Ocean: east Africa (Smith and Heemstra, 1986) to Indonesia (Allen and Adrim, 2003), north Australia (Matsuura, 2001), South China Sea (Randall and Lim, 2000), Korea (Jeju Island, present study) and southern Japan (Hayashi, 2002) eastward to the Micronesia (Myers, 1999), Hawaii (Mundy, 2005).

**Remarks.** The present specimen was characterized by having a large and posteriorly directed spine on middle part of dorsal ridge, supraorbital spine short, spine on ventrolateral ridge short, wavy blue lines on the body. Thus the morphological characters of the present specimen agreed well with those in the previous reports on *L. fornasini* (Table 1). *L. fornasini* is easily distinguishable from the other Korean boxfishes (*L. cornuta*) by having a spine on middle of dorsal ridge acute and longer (vs. obtuse and small) (Hayashi, 2002). This species resembles *L. diaphana*, but differs from it by wavy blue lines (vs. several spots) on the body, dorsal ridge high (vs. low) and middle of dorsal ridge with strongly (vs. slight) curved spine (Hayashi, 2002).

## REFERENCES

- Allen, G.R. and M. Adrim. 2003. Coral reef fishes of Indonesia. Zoological Studies, 42: 1-72.
- Bianconi, G.G. 1846. Nuovi annali delle scienze naturali Bologna (Ser. 2), 5: 113-115.
- Hayashi, M. 2002. Ostraciidae. In: Nakabo, T. (ed.), Fishes of Japan with pictorial keys to the species, English edition. Tokai Univ. Press, Tokyo, Japan, 1749pp.
- Hubbs, C.L. and K.F. Lagler. 1964. Fishes of the great lakes region. Bull. Granbrook Inst. Sci., 26: 19-27.
- Jordan, D.S. and H.W. Fowler. 1902. A review of the trigger-fishes, file-fishes, and trunk-fishes of Japan. Proc. U. S. Natl. Mus., 25: 251-286.
- Leis, J.M. and J.T. Moyer. 1985. Development of eggs, larvae and pelagic juveniles of three Indo-Pacific ostraciid fishes (Tetraodontiformes): *Ostracion meleagris*, *Lactoria fornasini* and *L. diaphana*. Japan. J. Ichthyol., 32: 189-202.
- Mori, T. and K. Uchida. 1934. A revised catalogue of the fishes of Korea. J. Chosen Nat. Hist. Soc., 19: 1-23.
- Matsuura, K. 1984. Family Ostraciidae. In: Masuda, H., K. Amaoka, C. Araga, T. Uyeno and T. Yoshino (eds.). The fishes of the Japanese archipelago. Tokai Univ. Press., Tokyo, p. 362.
- Matsuura, K. 2001. Families Ostraciidae, Aracanidae, Triodontidae, Tetraodontidae. pp. 3948-3957. In: Carpenter and Niem (eds.), FAO Species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Vol. 6. Bony fishes part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtle, sea snakes and marine mammals, Rome, FAO, pp. 3381-4218.
- Mundy, B.C. 2005. Checklist of the fishes of the Hawaiian archipelago. Bishop Museum Bulletins in Zoology, 6: 1-704.
- Myers, R.F. 1999. Micronesian reef fishes: a comprehensive

- guide to the coral reef fishes of Micronesia. 3rd ed. Coral Graphics, Guam, i-vi+1-330, pls. 192.
- Nelson, J.S. 2006. Fishes of the world. 4th ed., John Wiley and Sons, Inc., New York, 601pp.
- Okamura, O., Y. Machida, T. Yamakawa, K. Matsuura, and T. Yatou. 1985. Fishes of the Okinawa trough and the adjacent waters II. Japan Fisheries Resource Conservation Association, Tokyo, 530pp.
- Randall, J.E. and K.K.P. Lim. 2000. A checklist of the fishes of the South China Sea. Raffles Bull. Zool., Suppl., 8: 569-667.
- Smith, M.M. and P.C. Heemstra. 1986. Smith's sea fishes. Springer-Verlag, Grahamstown, 1047pp.

## 한국산 거북복과 어류 1미기록종 *Lactoria fornasini*

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**요 약 :** 거북복과(Ostraciidae)에 속하는 *Lactoria fornasini* 1개체 (표준체장 103.7 mm)가 제주도 위미에 설치된 정치망에 처음으로 채집되었다. 이 종은 눈앞에 1쌍의 가시가 돌출되었고, 꼬리지느러미 아래쪽의 배쪽 용기선으로부터 1쌍의 가시가 후방을 향해 돌아 있으며 등의 용기부 중앙에는 날카로운 가시를 갖고 있다. 그리고 몸에는 다양한 파란색 줄무늬를 가지고 있다. 이 미기록종의 신한국명을 “줄무늬빨복”으로 명명하였다.

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**찾아보기 낱말 :** 거북복과, 줄무늬빨복, 미기록종, 제주도