

## Morphological Remarks on a *Corbicula* Species Collected in Saga Prefecture, Japan

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Shell morphology of freshwater *Corbicula* specimens collected from Saga Prefecture, southern Japan was considerably different from that of *C. leana* Prime. The anterior lateral teeth (ALT) of the Saga specimens is narrow in width and sharp in ridge angle while that of *C. leana* collected in Mie is wide and blunt; mean ratio of basal width to height of ALT was 0.69 in Mie and 1.34 in Saga specimens. General morphological feature of the Saga specimens closely resembles that of a Chinese species *C. fluminea* (Müller) collected from Taiwan. Further studies on such as mode of reproduction, chromosome number in *Corbicula* species should be required for specific identification.

*Key words* : Bivalvia, *Corbicula*, lateral teeth, morphology

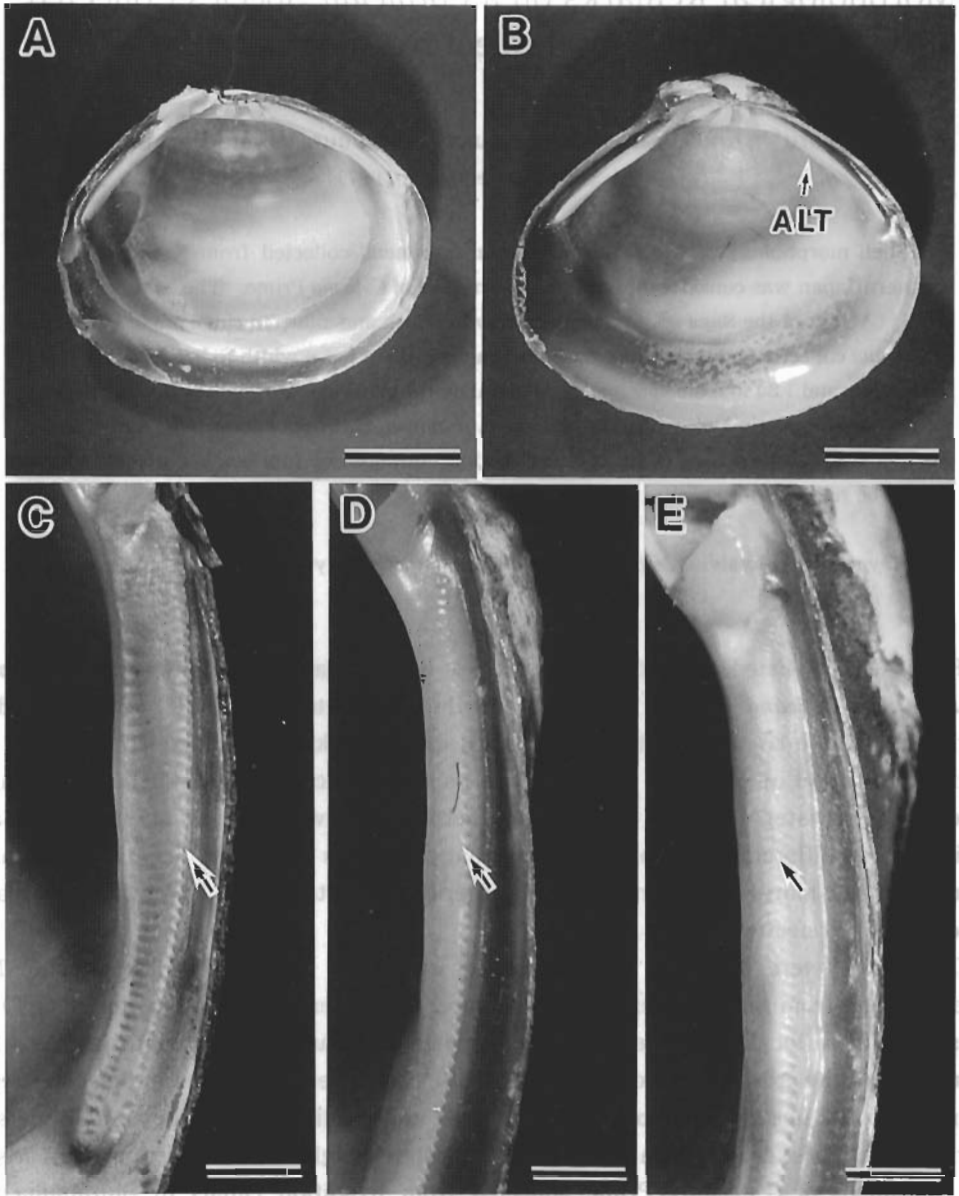
Habe (1977) listed three *Corbicula* species from Japan: *C. japonica* Prime, *C. sandai* Reihardt, and *C. leana* Prime. Among them, the freshwater species *C. leana* is widely distributing in the rivers and streams in Japan except Hokkaido (Habe 1977). They are hermaphrodite and incubate the larvae within its demibranchs (Miyazaki 1936). During a survey of freshwater clams in Kyushu, southern Japan, we found that shells of Saga specimens was different in morphology from that of *C. leana* in Japan. In this preliminary report, we give a morphological notes on the anterior lateral tooth (ALT) of *Corbicula* clams found in Saga Prefecture.

The clams were collected from irrigation canals in Meiwa and Tamaki-cho, Mie Prefecture, and from Banba River, Saga Prefecture. We observed the lateral teeth (LT) of shells from these localities, at least 10 specimens in each, using a stereomicroscope. For observation of the cross section of the lateral teeth, shells were embedded in polyester resin, cut into 1.0 mm thick by microtome and examined under a light microscopy. Sharpness of the ridge of LT is expressed as a ratio of basal width to height of the LT. For comparison, shell specimens of *C. insularis* Prime collected from irrigation canals in Shirahama-cho, Wakayama Prefecture and *C. fluminea* Müller from Hou Don, Keelung River, Taiwan, were

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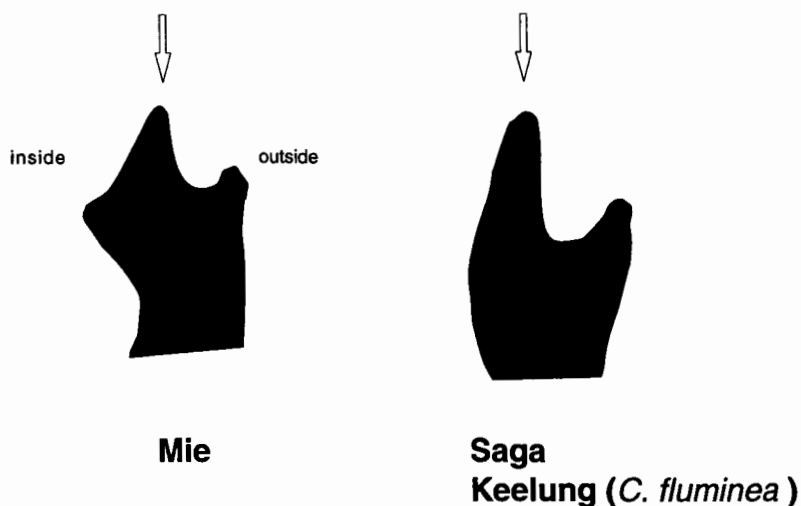
**Fig. 1.** Left shells of *Corbicula* species. A : *C. leana* from Mie, ALT anterior lateral teeth, B: unidentified *Corbicula* specimen from Saga, C: enlarged anterior lateral teeth of A, arrows indicate ridge of the teeth, D: the same of B, E: the same of *C. fluminea* from Keelung, Taiwan. Scale bars indicate 5.0 mm for A, B, and 1.0 mm for C-E.

also examined.

The outline of the shell of *C. leana* from Mie was round (Fig. 1 A). The anterior lateral tooth (ALT) (Fig. 1 C) was thin at the edge and thicker at the base. Inside of the tooth was inclined and curved. The base of teeth was pustulated. On the other hand, the shell from Saga was somewhat trigonal (Fig. 1 B), and the ALT was thin and sharp (Fig. 1 D). Mean ratio of basal width to height of the ALT was  $0.69 \pm 0.03$  in Mie and  $1.34 \pm 0.11$  in Saga specimens. It does not form the protrusion at the base as observed in *C. leana* from Mie. The morphology of thin ALT in Saga was closely similar to that of *C. fluminea* in Taiwan (Fig. 1E). No conspicuous difference of the posterior lateral teeth was found among Saga specimens, *C. insularis* and *C. fluminea*.

Masuda and Habe (1988) and Harada and Nishino (1995) suggested that *C. insularis* may have been introduced from Asian countries into Japan. In *C. insularis* there is purple marks along the lateral teeth. The ALT of the shells from Saga have no purple marks in the present collection. Judging from these observation, the clams from Saga is not assigned to *C. insularis*. Another Japanese freshwater clams *C. sandai* is clearly distinguished from the Saga specimens by shell morphology (Takayasu *et al.* 1986).

Hundreds of species have been described since the description of three species in this genus by Müller (Morton 1977). The taxonomy of the genus *Corbicula*, however, is complicated a present. Previous taxonomical works on the genus were based mainly on conchological characteristics. Morton (1987) stated that *Corbicula* species showed polymorphic shell color and morphology in the species. Inter- and intra specific variation of shell morphology and lack of basic biological information make the classification of the clams of *Corbicula* complicated (Morton 1986). In the present study we described the difference of



**Fig. 2.** Diagrammatic representation of a cross section of anterior lateral teeth in *Corbicula* species ; arrow indicates the top ridge of the teeth. A : *C. leana*, B : *C. fluminea* and Saga specimens.

morphology of ALT between Mie and Saga specimens (Fig. 2). According to Komaru *et al.* (1997), Mie and Saga samples were triploid and diploid, respectively. We have to examine whether the difference in the ALT is intra- or inter-specific variation. It is necessary to examine reproductive mode, karyotypes, and morphology of *Corbicula* species in Japan to make their taxonomical status clear.

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## 佐賀県産のシジミに見られた貝殻の形態変異について

古丸 明・小西光一・河村功一・酒井治己

佐賀県の筑後川水系において、三重県をはじめとする本州産のマシジミとは貝殻の形態が異なるシジミの標本を多数得た。貝殻内側にある前側歯の形態は三重県産マシジミでは角度が大きく、その稜頂部から基部に向かって徐々に幅が広くなっており、また基部はやや隆起して棚状である。一方、佐賀県の標本では前側歯はこれとは異なり、稜頂部は鋭角で、その基部においても幅が狭く、また前側歯の基部はほとんど隆起していない。これらの特徴はタイワンシジミに最も近いが、種名を確定するためには貝殻の形態だけでなく、繁殖様式や、染色体数、交雑の可能性等含めた様々な形質を検討することが必要であろう。