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ON SOME NEW RECORDS OF FRESHWATER OSTRACODS (CRUSTACEA : ENTOMOSTRACA) FROM INDIA

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INTRODUCTION

Freshwater ostracods are the important little crustaceans and they are very common in India. The systematics of fresh water ostracodes has been studied mainly from South India (Victor and Fernando 1979), Besides, few scattered references were also available from Punjab (Klie 1927), Bengal (Gurney, 1907), Maharashtra (Baird, 1859) and (Deb, 1972, 1984), Rajasthan (Deb, 1972) etc. Practically no work was done on ostracods of Madhya Pradesh. The present paper is the part of extensive, districtwise study of ostracods of M. P. The paper deals with five species under four genera of two families viz. *Strandesia perakensis* Victor and Fernando 1981, *Stenocypris orientalis* Victor and Fernando 1981). *Chrissia formosa* (Klie, 1938), *Cypretta raciborskii* (Grochmalicki), 1915 and *Cypretta seurati* Gauthier, 1929, which are being reported here for the first time from India.

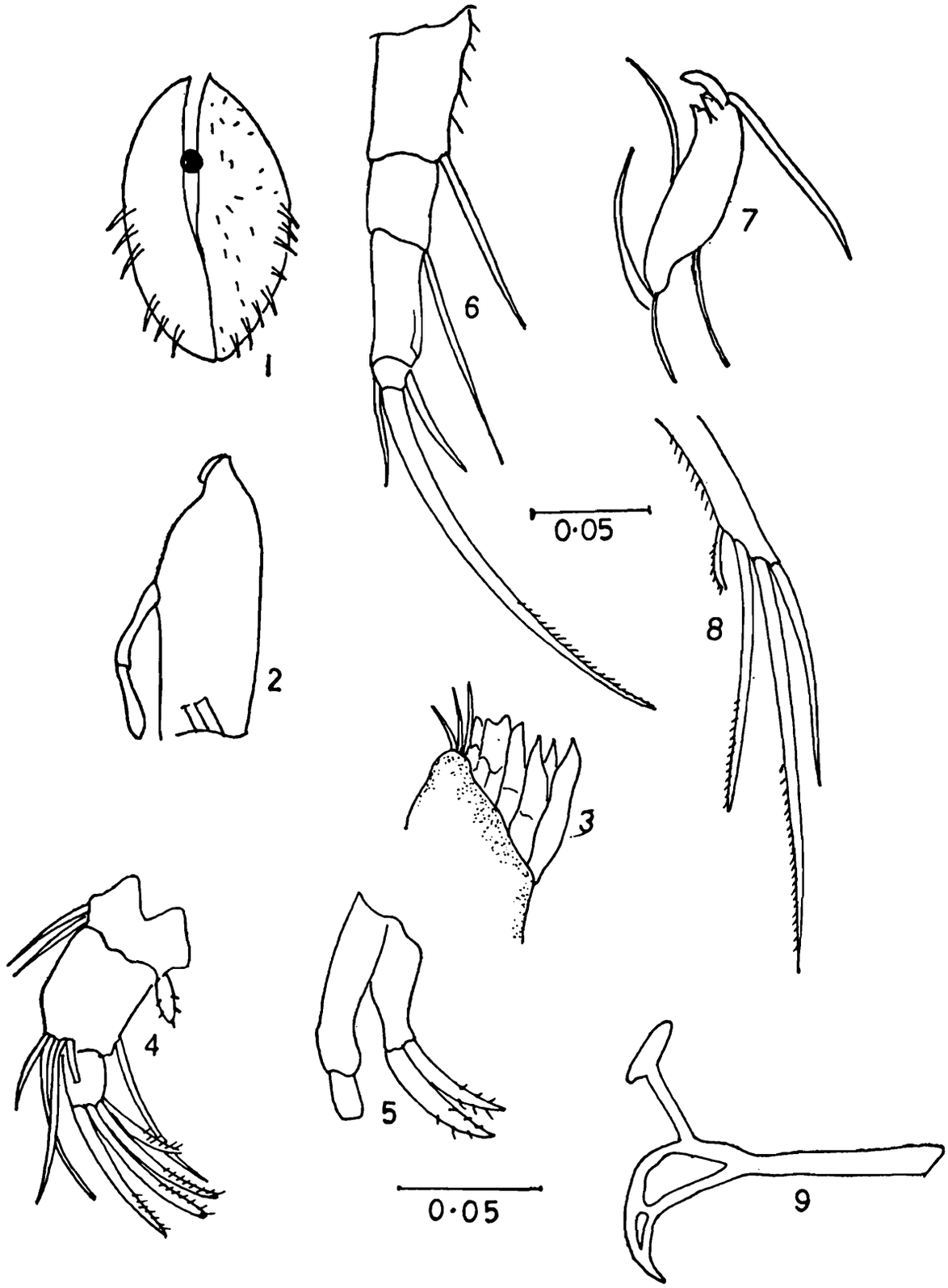
SYSTEMATIC ACCOUNT

Class : CRUSTACEA
Subclass : OSTRACODA
Family I : CYPRIDIDAE

Genus 1 : **Strandesia** Vavra, 1895

1895. *Cypris (Strandesia) marcatorum* Vavra, *Jabrbuchder Hambnrgischen Wissenchaltichen Anstalfen.* XII : 6.

Diagnosis : Length of valves is up to 2·5 mm-. In lateral view, valves are moderately elongate, subovate or subelliptical, but some times triangular. Left valve overlaps the right. Inner duplicature wide anteriorly and narrow posteriorly. Pore



Figs 1—9: *Strandesia perakensis*, (1) Carapace, dorsal view; (2) First endopodite of antenna showing sensory club; (3) Pars incisiva of the mandible; (4) Mandibular palp, arrow shows B spine; (5) Third and fourth maxillular palps; (6) First thoracic leg; (7) Second thoracic leg; (8) Furcal ramus, distal and magnified; (9) Furcal attachment.

canals are simple, Dorsal, marginal and lateral spines are common for this genus. Natatory setae and sensory club well developed. Furcal rami symmetrical, slender, straight or curved and long.

I. Strandesia perakensis Victor & Fernando

1981. *Strandesia perakensis* Victor & Fernando, *Arch. Hydro biol.*, 58 (4) : 469.

Diagnosis : Carapace moderately inflated, valves subovate, left valve larger overlapping the right ; 10-12 posteriorly directed spines behind the muscle scar region. Posterior seta of furca setulate in the posterior aspect, smooth terminal seta. Furcal attachment with moderately long central branch.

Female : Carapace moderately inflated, valves unequal, left overlaps right anteriorly and posteriorly. In lateral view valves ovate, dorsum broadly arched, greatest height slightly anterior to the middle. Margins hairy, marginal pore canals simple. 10-12 posteriorly directed spines in the mid dorsal region. Colouration brownish (Fig. 1).

Antenna with five hairy natatory setae, not reaching the tips of terminial claws : four claws, distinctly toothed at the distal end. Sensory club two segmented (Fig. 2). Pars incisiva of the mandible with six teeth (Fig. 3) the β spine present, γ spine absent (Fig. 4). Maxillular spines of the third palp toothed (Fig. 5). First thoracic leg (the walking limb) with a long end claw (Fig. 6). Terminal segment of second thoracic leg (the cleaning limb) with a beak like claw and a reflexed seta (Fig. 7). Furcal rami symmetrical, slender and long ; terminal and subterminal claw pectinate. Subterminal claw and posterier seta short ; posterior margin of ramus bristled (Fig. 8). Furcal attachment with Tribels loop (Fig. 9).

Male : Unknown.

Measurements :

n(=6) Length—0·76±0·03
Height—0·46±0·4
Width —0·45±0·02

Specimen examined : 6 ♀ ♀, Batsagar dist., Jabalpur, coll. P. D.·Rane, 22. 9. 1980 (Reg. No. A/1414).

Distribution : W. Malaysia, E. Malaysia and Indonesia.

Genus 2 : **Stenocypris** Sars, 1889

1889. *Stenocypris* Sars, *Arch. Math. Naturv. Kristiania* 8 : 27

Diagnosis : Valves elongate, equal or unequal, posterior and anterior end rounded or one end pointed. Septa prominent, compact, forming radial band. Surface variable. Dorsal setae absent.

II. **Stenocypris orientalis** Victor & Fernando

1981. *Stenocypris orientalis* Victor and Fernando, *Mitt. Hamburg Zool. Mus. Inst.*, 78 : 151.

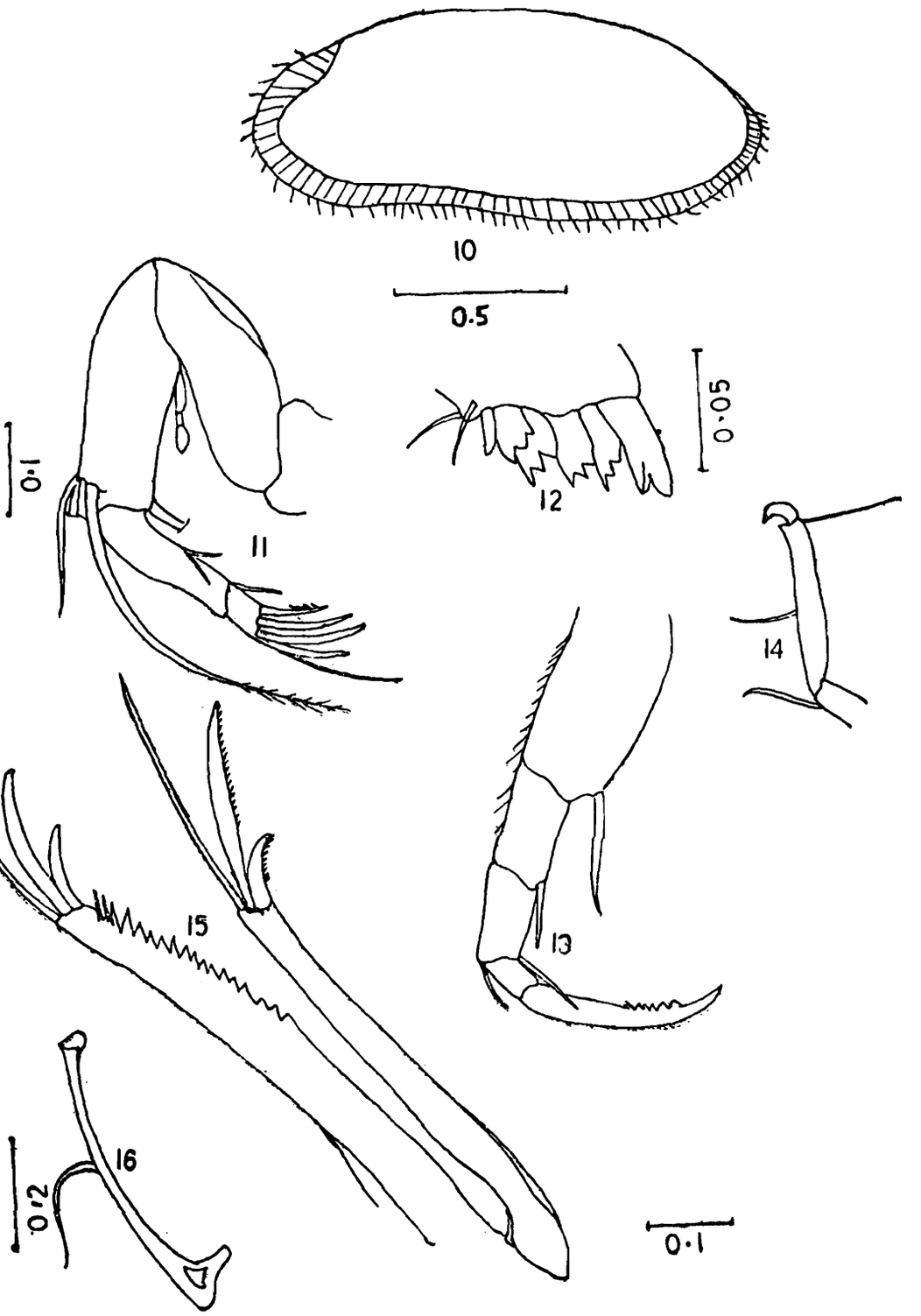
Diagnosis : Valves elongate, dorsum almost straight in the middle, posterior margin narrowly rounded, surface punctate and with reticulations, radial band of septa broad and anteriorly with an inwardly building antero-dorsal pattern. Asymmetrical rami, short antero-distal bristles present.

Female : Valves elliptical in dorsal view, laterally compressed, left valve larger than the right. Dorsum almost straight in the middle, smoothly curving anteriorly ; greatest height in the middle. Anterior margin broadly rounded ; posterior margin narrow and bluntly rounded. Radial band of septa distinct, broad in the anterior margin, presence of longer septa in antero-dorsal region thus giving an inwardly bulging appearance ; the septa continues as a narrow band in the ventral and posterior region ; radial band absent in postero-dorsal region (Fig. 10).

Antenna having smooth natatory setae, barely reaching the tips of terminal claws, claws four in number, anterior claws short and toothed, posterior claw smooth, sensory club two segmented (Fig. 11). Gnathobasis of mandible with six teeth (Fig. 12). First thoracic leg (the walking limb) with a long claw pectinate heavily in the middle (Fig. 13). Terminal segment of second thoracic leg (the cleaning limb) with a prominent, curved, bristled claw, pincers and a reflexed seta (Fig. 14). Furcal rami asymmetrical ; right ramus slightly curved, posterior margin strongly toothed ; left ramus nearly straight, posterior margin weakly bristled for half (of) its length ; posterior seta absent, terminal seta of left ramus exceeds the length of terminal claw. Both claws toothed heavily (Fig. 15). Furcal attachment as illustrated (Fig. 16).

Male : unknown.

Measurements : Length—1·75±0·10 mm.
n(=15) Height—0·70±0·03 mm.



Figs. 10—16 : *Stenocypris orientalis*, **(10) Left valve, external view ; (11) Antenna ; (12) Mandibular teeth ; (13) First thoracic leg ; (14) Second thoracic leg ; (15) Right and left Furcal rami ; (16) Furcal attachment.**

Specimen examined : 15 ♀ ♀ , Bhartadeo, dist. Chhindwara, M. P., coll. R. K. Singh, 1989-1991 (Reg. No. A/2369).

Distribution : Phillipines and W. Malaysia.

Remarks : The specimens are smaller in size compared to specimens of Phillipines & W. Malaysia but other diagnostic characteristics are similar.

Genus 3 : Chrissia Hartmann, 1957

1957. *Chrissia levetzovi* Hartmann. *Osnabruck*, 50.

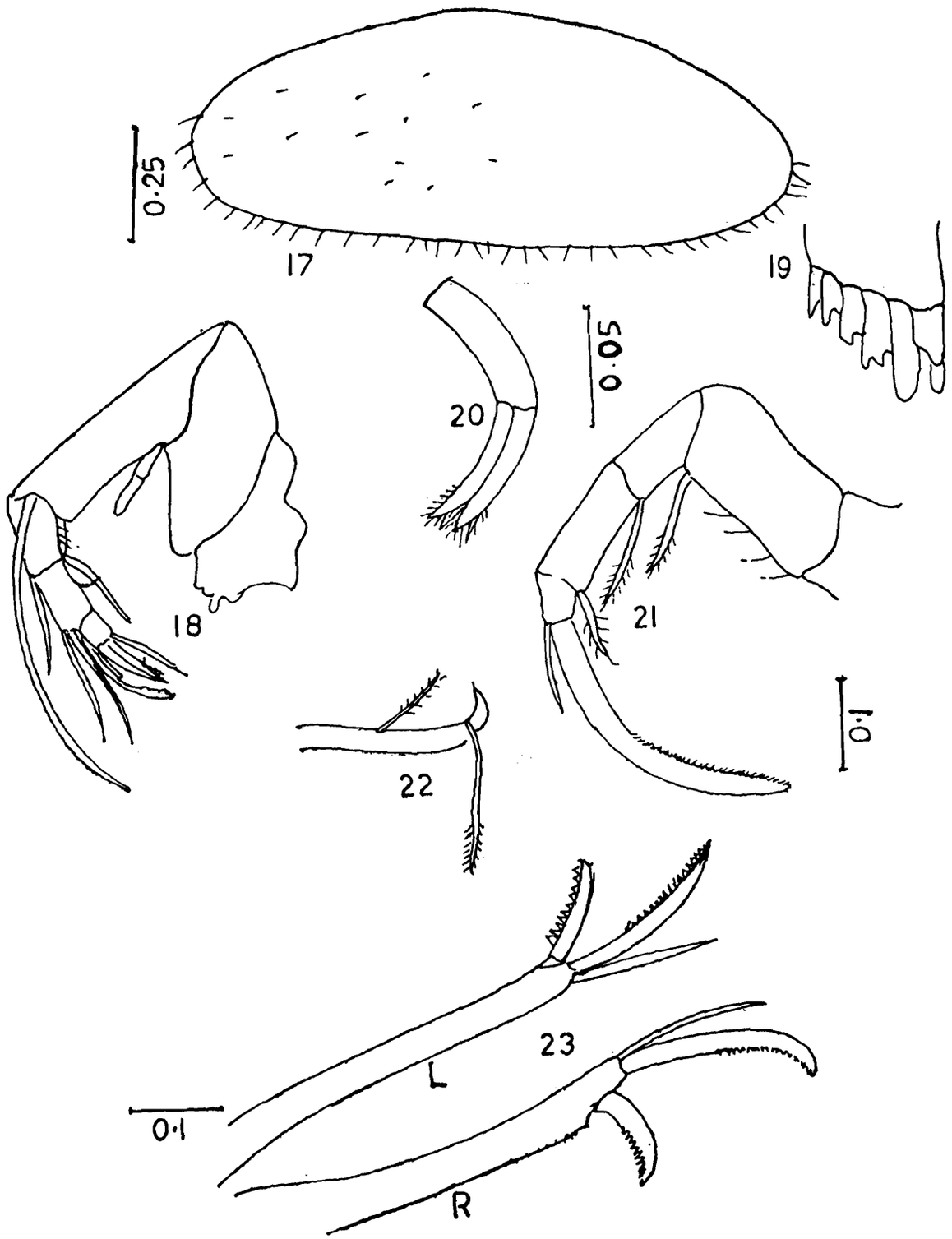
Diagnosis : The valves with short marginal pore canals distinguishes this genus from *Parastenocypris* which has well developed branching marginal pore canals.

III. Chrissia formosa (Klie)

1938. *Stenocypris formosa* Klie, *Bull. biogeogr. Soc. Japan* ; 8 : 21.
1981. *Chrissia formosa* Victor and Fernando, *Mitt. Hamburg. Zool. Mus. Inst.*, 78 : 152.

Diagnosis : Valves elongate in lateral view, greatest height in the middle ; anterior and posterior margin rounded. Antenna with five smooth natatory setae, slightly reaching beyond the tips of terminal claws. Four claws toothed. Furcal ramus assymetrical, right ramus broader, slightly curved ; anterior margin with three inconspicusous depressions.

Female : Valves elongate in dorsal view, greatest height in the middle, left valve larger than right ; anterior and posterior margins rounded, ventral margin straight ; dorsum smoothely convex, no radial band of septa ; posterior and anterior margins hairy. Surface punctate with a sporse distribution of hairs. Colour whitish (Fig. 17). Second thoracic leg with five smooth natatory setae slightly reaching beyond the tips of terminal claws ; four claws, toothed, seta next to posteriormost claw is claw like and strongly pectinate (Fig. 18). Gnathobasis of the mandible with six teeth (Fig. 19), β and γ spines present. Maxillular spines toothed (Fig. 20). First thoracic leg (the walking limb) with a long end claw, distinctly pectinate up to 1/2 of its length (Fig. 21). Terminal segment of second thoracic leg (the cleaning limb) with a curved bristled claw, reflexed seta finely setulate (Fig. 22). Furcal rami asymmetrical ; right ramus broader, slightly curved, posterior margin bristled for $\frac{3}{4}$th of its length ; anterior margin with three inconspicuous depressions ; left ramus narrow and straight, posterior margin smooth ; both claws heavily denticulate (Fig. 23).



Figs. 17–23 : *Chrissia formosa*, (17) Right valve, external view ; (18) Antenna ; (19) Mandibular teeth ; (20) Maxillular spines ; (21) First thoracic leg ; (22) Second thoracic leg ; (23) Right and left furcal rami.

Male : Unknown.

Measurements : Length—1·61±0·02 mm.
n(=12) Height—0·65±0·02 mm.
Width—0·45±0·03 mm.

Specimen examined: 12 ♀ ♀, Bhartadeo, Chhindwara dist., coll. R. K. Singh, 19. 9. 91 (Reg. No. A/2370).

Distribution : West Malaysia and Indonesia.

Family II : CYPRIDOPSIDAE

Genus 4 : Cypretta Vavra, 1895

1895. *Cypretta (Cypridopsis) tenuicauda*, Vavra, *Jabrbuch der Hamburgisches wissenscha flichen Anstalfen XII*: 6,

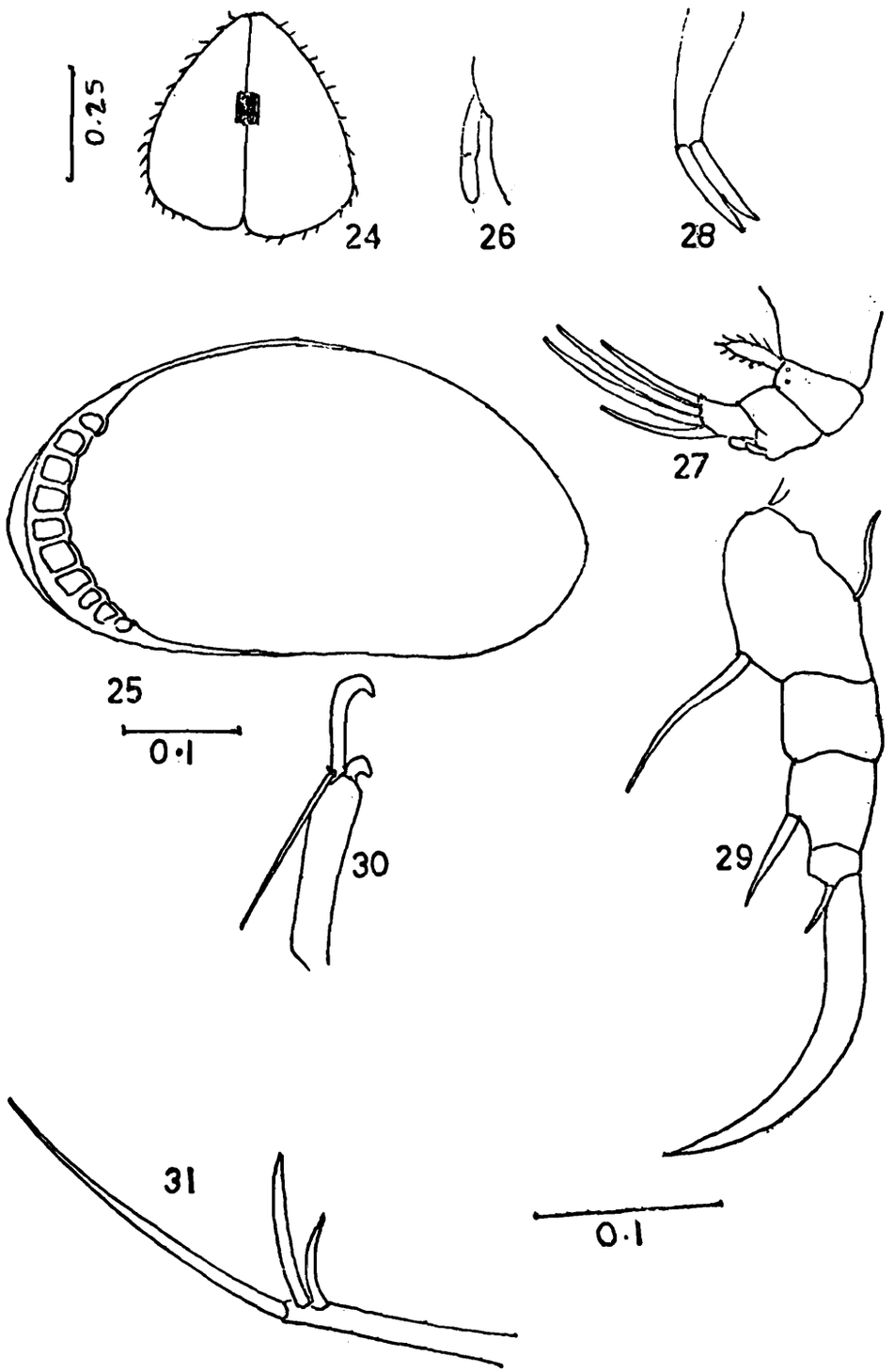
Diagnosis : Carapace is tumid and in lateral view, the valves subovate, ovates or sub-triangular. Both valves have septa. Valves are unequal and the right valve is larger than left. Furca is leg like, weakly developed with subterminal and terminal claws; posterior seta present and terminal seta may be present or absent.

IV. Cypretta raciborskii (Grochmalicki)

1915. *Cypridopsis raciborskii* Grochmalicki, *Anz. Akad. Wiss. Krakan, Math. nat. Kl. Reihe* 13 : 235.
1981. *Cypretta raciborskii*, Victor and Fernando, *Int. Revue ges. HydrobioI.*, 66 (3) : 426.

Diagnosis : Carapace is tumid, with broadly pointed anterior and angular posterior ends. Valves surface punctate and sparsely hairy. Valves unequal, right valve larger overlapping the left anteriorly and posteriorly. Furcal rami weakly developed, terminal seta missing.

Female : Carapace tumid, with broadly pointed anterior end, and angular posterior end. Valves dorsally triangular in shape. Valves unequal, right larger than the left overlapping the later anteriorly and posteriorly. In lateral view valves elongately ovate. Anterior margin of both the valves distinctly septate. Pore canals simple. Valve surface punctate and with few hairs (Fig. 24, 25).



Figs. 24—31: *Cypretta raciborski*, (24) Carapace dorsal view; (25) Left valve internal view; (26) Sensory club; (27) Mandibular palp; (28) Maxillular spines; (29) First thoracic leg; (30) Second thoracic leg; (31) Furcal ramus.

Natatory setae of antenna well developed, reaching beyond the tips of terminal claw. Sensory club two segmented (Fig. 26). Gnathobasis of mandible dentate ; β and γ spines present (Fig. 27) ; maxillular spines smooth (Fig. 28). First thoracic leg (the walking limb) with a scythe like end claw, pectinate at the distal end (Fig. 29). Terminal segment of the second thoracic leg (the cleaning limb) with a curved striate end claw, well developed pincers and a reflexed seta exceeding three forth the length of penutimate segment (Fig. 30). Furcal rami slender, symmetrical, weekly developed, leg like, terminal seta missing (Fig. 31).

Male : Unknown.

Measurements : Length—0·52±0·02 mm.
n(=15) Height—0·32±0·03 mm.
Width—0·04±0·03 mm.

Specimen examined : 15 ♀ ♀, Kutru, dist. Bastar, coll. R. K. Ghose, 28. 1. 1990 (Reg. No. A/2372).

Distribution : West Malaysia and Indonesia.

Remarks : The description of specimens collected from this area more or less identical with the specimens of W. Malaysia and Indonesia, but the sensory club seen in the Indian specimens found to be two segmented instead of three segmented.

V. Cypretta seurati Gauthier

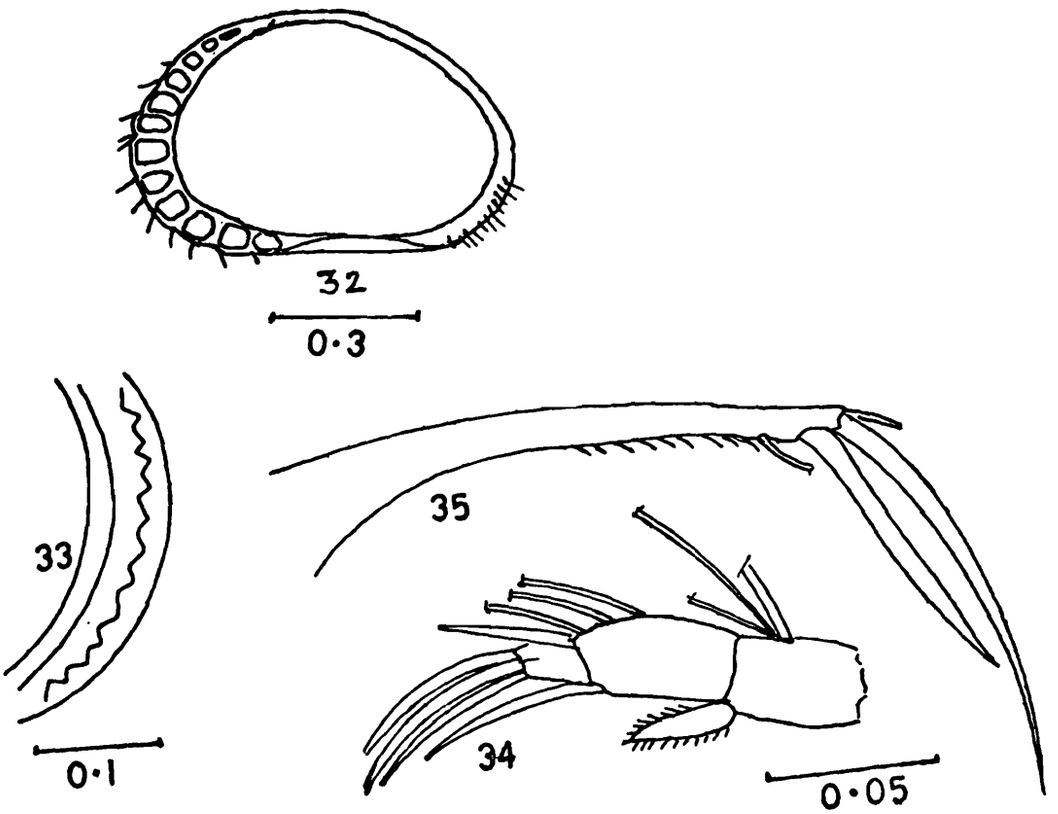
1929. *Cypretta seurati* Gauthier ; *Bull. Soc. Hist. Nat AF. N.* 20 : 158.
1973. *Cypretta seurati* : Gauthier, *Proc. Jap. Soc, Syst. Zool.*, 9 : 1-6.

Diagnosis : The diagnostic features of this species are the internal view of left and right valves, anterior septa of the left valve and posterior wavy sinuations of the germ septa in the left valve.

Female : Carapace tumid, subovate in lateral view valves unequal ; the right valve is larger than the left and overlapping the left, anteriorly and posteriorly. Valve surface pitted and sparsely piolse. Both valves have septa. Wavy sinutations in germ septa in the left valve (Fig. 32, 33).

Antennule well developed having endopodite five segmented. Natatory setae of the antenna reaching beyond the tips of terminal claws. Sensory club one segmented. Gnathobasis of mandible strongly dentate β and γ spine present (Fig. 34). First tho-

racic leg (the walking limb) with a curved end claw, pectinate at the distal end. Second thoracic leg (the cleaning limb) with a curved beak like claw ; pincess well developed, reflexed seta long. Furcal rami long, slender, symmetrical, weakly developed ; subterminal claw more than the half the length of terminal claw ; posterior seta small : terminal seta present but small (Fig. 35).



Figs. 32—35 : *Cypretta seurati*, **(32) Right valve, internal view ; (33) Left valve posterior margin ; (34) Mandibular palp ; (35) Furcal ramus.**

Male : Unknown.

Measurements : Length—0·75±0·07 mm.
n(24) Height—0·45±0·06 mm.
Width—0·50±0·08 mm.

Specimen examined : 24 ♀ ♀, Kanha, dist. Mandla, M. P., coll. R. K. Ghosh 3. 2, 1991, (Reg. No. A/2093) ; 16 ♀ ♀, Bhartadeo, dist. Chhindwara, M. P. coll. R. K. Singh 19. 9. 1991 (Reg. No. A/2371).

Distribution : W. Malaysia, E. Malaysia, Phillipines, S. Europe, N. Africa, Japan.

Remarks : It appears to be a common species in Malaysia, Indonessia and Phillipines. Okubo (1973) redescribed this species from Japan. The southeast Asian specimens reported by Victor and Fernando (1981c) and Indian specimens have sparsely pilos valves but it is not reported in Japanese specimens.

SUMMARY

The paper deals with five species of freshwater ostracoda belonging to four genera of two families namely *Strandesia perakensis* Victor and Fernando, *Stenocypris orientalis* Vtctor and Fernando, *Chrissia formosa* (Klie), *Cypretta raciborskii* (Grochmalicki), *Cypretta seurati* Gauthier. All the species are being reported here for the first time from India. These species are collected from various localities of Jabalpur, Bastar, Chhindwara and Kanha of M. P.

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