**Table S1.** List of characters

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| Continuous |
| **1** Length of carapace (dorsal view) in ♂**2** Length of carapace (dorsal view) in ♀**3** Ratio: width/length of carapace (dorsal/ventral views) in ♂**4** Ratio: width/length of carapace (dorsal/ventral views) in ♀**5** Ratio: lobe distal basis width/lobe distal length (**Hp**) |
| Carapace |
| **6** Anterior end length of major valve in relation to the minor valve (dorsal/ventral views): **(0**) symmetric (=equal); **(1)** asymmetric (=larger).**7** Posterior end length of major valve in relation to the minor valve (dorsal/ventral views): **(0)** symmetric (=equal); **(1)** asymmetric (=larger).**8** Overlap position of major valve over the minor valve on posterior carapace region (dorsal/ventral views): **(0)** displaced over minor valve; **(1)** centralized.**9** Anterior margin expansion (dorsal view): **(0)** expanded; **(1)** not expanded.**10** Anterior end overlapping (dorsal/ventral views): **(0)** tightly overlapped; **(1)** with gap.**11** Posterior contour shape (dorsal/ventral views) in ♂: **(0)** rounded (evenly/narrowly); **(1)** acuminate.**12** Posterior contour shape (dorsal/ventral views) in ♀: **(0)** invaginated; **(1)** truncate; **(2)** rounded; **(3)** acuminate.**13** Ventral surface shape: **(0)** rounded; **(1)** flat on the central portion; **(2)** totally flat.**14** Ventral ridge thickening along major valve (ventral view): **(0)** entirely calcified; **(1)** partially calcified**.****15** Ventral ridge thickening along minor valve (ventral view): **(0)** entirely calcified; **(1)** partially calcified.**16** Number of overlapping flaps on major valve (ventral view): **(0)** one; **(1)** two. **17** Posterior ventral margin and ventral ridge on major valve (ventral view): **(0)** separated; **(1)** united.**18** Latero-ventral shape (ventral view): **(0)** smooth; **(1)** with ridge.**19** Dorsal margin shape (right lateral view): **(0)** straight; **(1)** slightly arched; **(2)** tightly arched.**20** Ventral margin shape (right lateral view): **(0)** straight; **(1)** arched.**21** Antero-ventral shape (right lateral view): **(0)** uniform; **(1)** withdiscreet flange; **(2)** with pronounced flange.**22** Anterior tooth length on minor valve (internal view): **(0)** absent; **(1)** short; **(2)** medium; **(3)** long.**23** Posterior tooth length on minor valve (internal view): **(0)** absent; **(1)** short; **(2)** medium; **(3)** long.**24** Bar length on major valve (internal view): **(0)** absent; **(1)** short; **(2)** long.**25** Postero-ventral margin shape (internal view): **(0)** smooth; **(1)** jagged.**26** Antero-ventral region (oral) shape of major valve (internal view): **(0)** uniform; **(1)** with bow funnel-shaped structure.**27** Antero-ventral region (oral) shape of minor valve (internal view): **(0)** uniform; **(1)** with bow funnel-shaped structure.**28** Bow funnel-shaped structure ornamentation on oral region (internal view): **(0)** smooth; **(1)** crenulated.**29** Selvage and anterior outer margin of minor valve (internal view): **(0)** united; **(1)** separated (forming flange).**30** Selvage and posterior outer margin of minor valve (internal view): **(0)** united; **(1)** separated (forming flange).**31** Selvage and anterior outer margin of major valve (internal view): **(0)** united; **(1)** separated (forming flange).**32** Selvage and posterior outer margin of major valve (internal view): **(0)** united; **(1)** separated (forming flange).**33** Flange continuity in minor valve (internal view): **(0)** continuous; **(1)** discontinuous.**34** Valves overlap: **(0)** L/R; **(1)** R/L.**35** Sexual dimorphism degree: **(0)** subtle (= same posterior contour in ♂ and ♀); **(1)** outstanding (= different posterior contour in ♂ and ♀).**36** Carapace compression (dorsal/ventral views): **(0)** compressed (= with lateral sulcus); **(1)** not compressed. |
| Antennula |
| **37** 1st segment sub-apical region (**A1**): **(0)** typical (= without sub-apical expansion); **(1)** forming sub-apical expansion.**38** ‘4a’ and ‘4b’ articles fusion (**A1**): **(0)** separated; **(1)** partially fused; **(2)** fused.**39** Ratio: ‘**Ya**’ chemosensorial section length/total ‘**Ya**’ length (**A1**): **(0)** ≥ 30%; **(1)** < 30%.**40** 4th segment dorso-apical setae number (**A1**): **(0)** one; **(1)** two.**41** 4th segment dorso-apical setae length (**A1**): **(0)** (sub-)equal; **(1)** 1 short and 1 long.**42** 5th/‘4b’ segment dorso-apical setae number: **(0)** two; **(1)** three. |
| Antenna |
| **43** 1st endopodal segment dorsal pseudochaetae arrangement (**A2**): **(0)** absent; **(1)** arranged in two groups; **(2)** arranged in three groups.**44** 2nd endopodal segment vestigial seta (**A2**): **(0)** absent; **(1)** present.**45** 3rd endopodal segment vestigial seta (**A2**): **(0)** absent; **(1)** present.**46** ‘**Gp**’ claw shape (**A2**) on ♂: **(0)** serrated; **(1)** smooth.**47** Adjacent ‘**Gp**’ claw shape (**A2**): **(0)** serrated; **(1)** smooth.**48** 3rd endopodal segment ‘**hy**’ (**A2**): **(0)** absent; **(1)** present.**49** Exopodite vestigial seta (**A2**): **(0)** absent; **(1)** present.**50** Ratio: ‘**Y**’ chemosensorial section length/total ‘**Y**’ length (**A2**): **(0)** ≥ 30%; **(1)** < 30%.**51** Spinneret seta (exopodite) tip length (**A2**): **(0)** > 1/3 total exopodite length; **(1)** < 1/3 total exopodite length.**52** 1st endopodal segment ventro-apical seta length (**A2**): **(0)** long (as long as 2nd endopodal segment length); **(1)** short (2nd endopodal segment half-length).**53** 2nd endopodal segment medio-ventral setae number (**A2**): **(0)** two; **(1)** one.**54** **‘Y**’ length (**A2**): **(0)** long ( > 1/2 segment length); **(1)** short ( < 1/2 segment length).**55** 2nd endopodal segment dorsal setae insertion (**A2**): **(0)** medial (50%-75% segment length); **(1)** subapical ( ≈ 25% segment length).**56** 2nd endopodal segment ventro-apical seta length (**A2**): **(0)** long ( > 1/2 terminal claws length); **(1)** short ( < 1/2 terminal claws length). |
| Oral appendages |
| **57** 2nd and the 3rd segments fusion (**Md**): **(0)** divided; **(1)** fused.**58** 1st and 2nd endites claw apex shape (**Mx**): **(0)** spatular; **(1)** tuned. |
| Thoracic appendages |
| **59** Distal claw vestigial seta (**T1**): **(0)** absent; **(1)** present.**60** 1st segment dorso-medial setae number (**T1**): **(0)** two; **(1)** one.**61** 2nd segment dorso-apical seta length (**T1**): **(0)** long ( > 3rd segment tip); **(1)** short ( < 3rd segment tip).**62** Distal claw vestigial seta (**T2**): **(0)** absent; **(1)** present.**63** 1st segment dorso-medial setae number (**T2**): **(0)** two; **(1)** one.**64** 2nd segment dorso-apical seta length (**T2**): **(0)** long ( > 3rd segment length); **(1)** short ( < 3rd segment tip).**65** Distal claw vestigial seta (**T3**): **(0)** absent; **(1)** present.**66** 1st segment dorso-medial setae number (**T3**): **(0)** two; **(1)** one.**67** 2nd segment dorso-apical seta length (**T3**): **(0)** long ( > third segment tip); **(1)** short ( < third segment tip).Sexual appendages |
| **68** Distal lobe digital process development (**Hp**): (0) fully developed; (1) vestigial; (2) merged to distal lobe contour.**69** Distal lobe digital process position (**Hp**): **(0)** basal; **(1)** medial; **(2)** apical.**70** Distal lobe digital process shape (**Hp**): **(0)** typical (finger-shape); **(1)** pointed.**71** Distal lobe apex shape (**Hp**): **(0)** rounded; **(1)** sinuous; **(2)** acuminate; **(3)** straight.**72** Distal lobe dorso-apical seta (**Hp**): **(0)** absent; **(1)** short ( < 1/2 distal lobe length); **(2)** medium ( ≈ 1/2 distal lobe length); **(3)** long ( > 1/2 distal lobe length).**73** Copulatory process shape (**Hp**): (0) typical (hook-like); (1) other.**74** Glans and ejaculatory duct union (**Hp**): **(0)** separated; **(1)** united.**75** Upper ramus (**Hp**): **(0)** present; **(1)** absent.**76** Lobe distal symmetry (**Hp**): **(0)** symmetric; **(1)** asymmetric.**77** Setae number (**female genital lobe**): **(0)** two; **(1)** three. |