**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. |