An anatomical detail of the male internal genitalia of *Megarthrus affinis* Miller (Coleoptera Staphylinidae Proteininae)

Note 09 (Staphylinoidea), released by Luigi De Marzo on November 2012 – A unusual equipment of accessory glands is described. l.demarzo@alice.it www.luigidemarzo.eu

SUBJECTS

- Male internal genitalia of Staphylinidae (s.l.) are provided with 1-2 pairs of accessory glands; otherwise, they lack any glandular unit.
- Literature on this matter provides knowledge referred to members of the subfamilies Aleocharinae, Leptotyphlinae, Paederinae and Pselaphinae (Figs. 1-3).
- Although they are usually symmetrical, accessory glands of a member of the subfamily Proteininae, *Megarthrus affinis* Miller, include an apparently unpaired unit.

MATERIAL AND METHODS

- *Megarthrus affinis* does proliferate in autumn, when larvae do occur in masses of plant debris of agricultural origin (De Marzo, 2002).
- Males and females were collected in this season by sifting dregs of pressed grapes;
- they were dissected in saline (NaCl 0,9%) and examined on slides in the same solution.

RESULTS

- Besides the ejaculatory duct and the copulatory device, male genitalia of *Megarthrus affinis* include a further large, unpaired organ (Fig. 4).
- This is sack-like, about 2 mm-long, and can be easily recognized as a gland because of its epithelial layer;
- therefore, it is reported as “GI, internal accessory gland”.
- The other gland GI of the same specimen is comparatively small, as its length is about 0,30 mm.
- The glandular equipment of *Megarthrus affinis* includes a second pair of accessory glands.
- These are reported as “GE, external accessory glands”, are roughly similar to each other for both shape and length and connect to the ejaculatory duct through a small reservoir.
- Female genital tracts of *Megarthrus affinis* are devoid of spermatheca,

• and inseminated female do store sperm in their oviducts (Fig. 5).
• These contained some masses of spermatozoa scattered within an exceeding amount of amorphous material.
• Each mass included several thousand of spermatozoa.

CONCLUDING REMARKS

• Asymmetric condition of the male glandular equipment wasn't previously recorded for Staphylinidae (s.l.);
• seemingly, it relates with the production of a conspicuous amount of amorphous material,
• which copulating males of *Megarthrus affinis* do transfer to a female together with the spermatozoa.
• The modified male accessory gland can be regarded as main source of this amorphous material.

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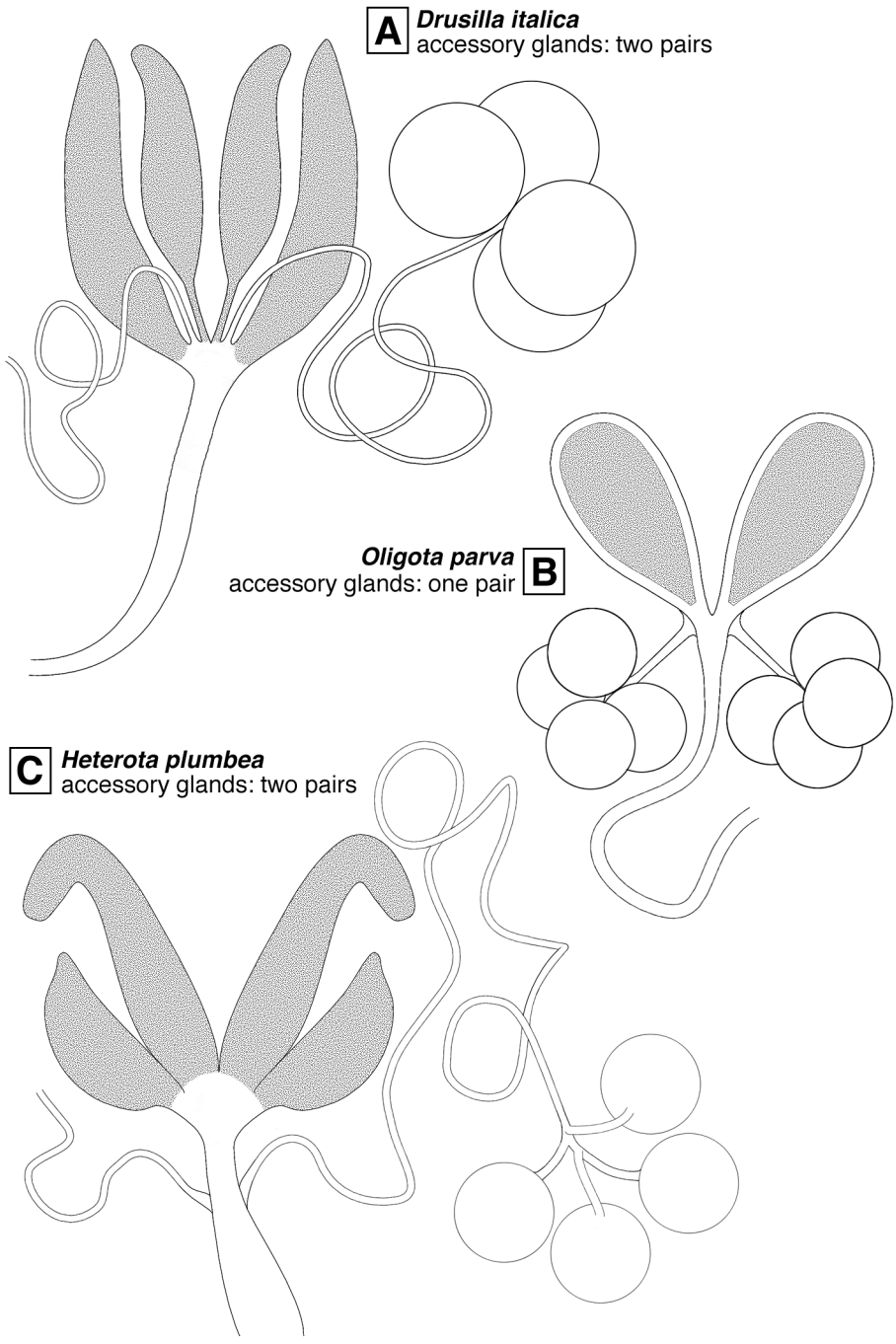

Fig. 1 – Instances of male internal genitalia in Staphylinidae-Aleocharinae: A-B, redrawn from De Marzo (2008); C, redrawn from De Marzo (2011).

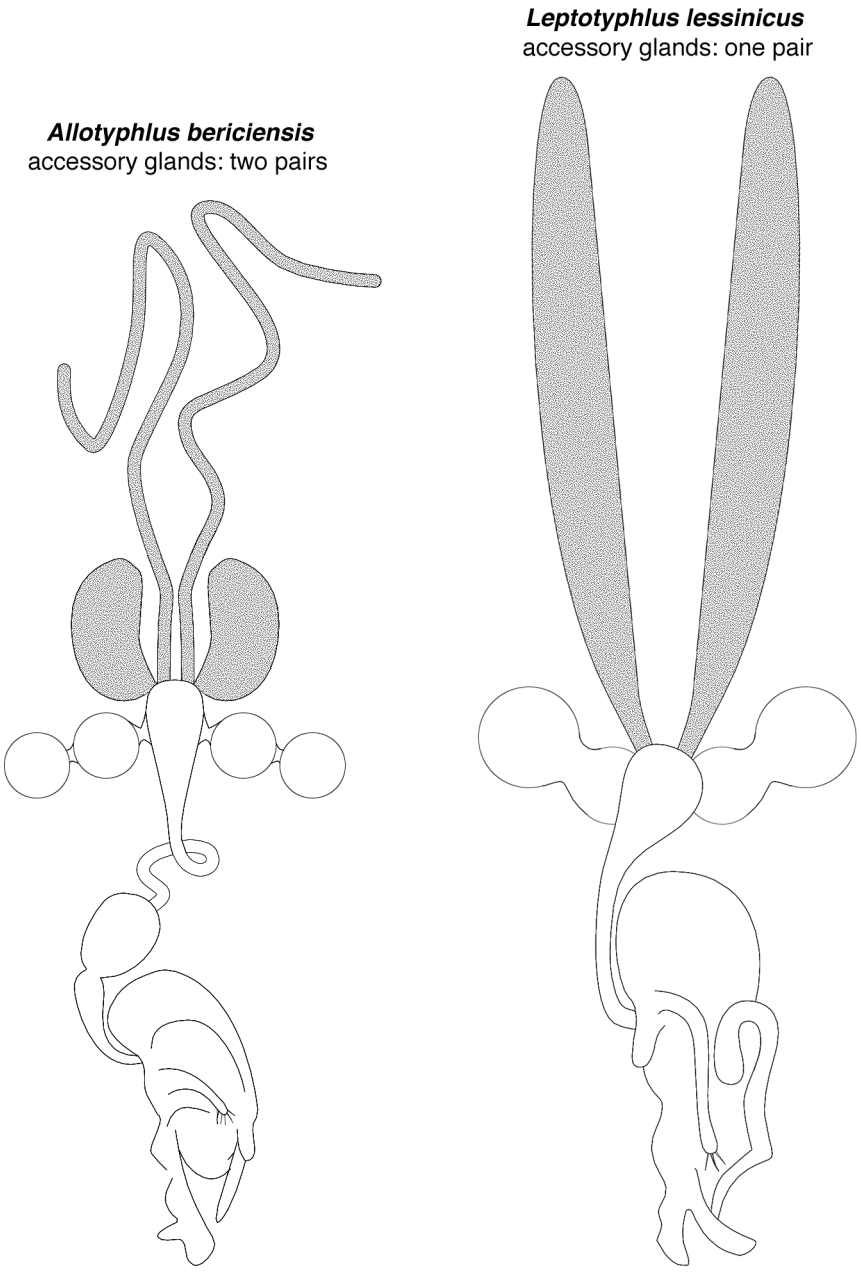

Fig. 2 – Instances of male genitalia of Staphylinidae-Leptotyphlinae, redrawn from Pace (1996).

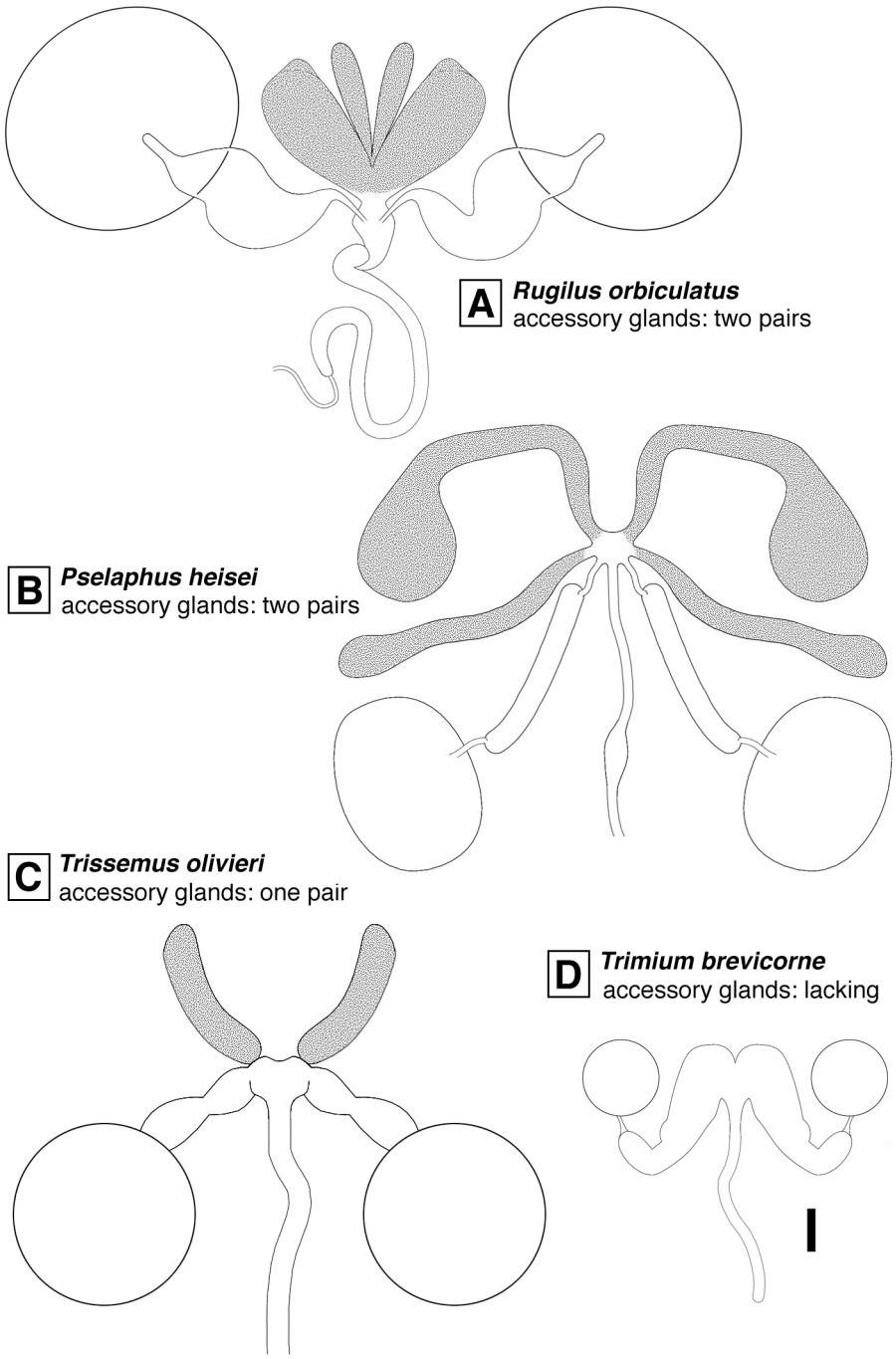

Fig. 3 – Instances of male internal genitalia in Staphylinidae: A, Paederinae, redrawn from De Marzo (2010); B-D, Pselaphinae, redrawn from De Marzo (1991).

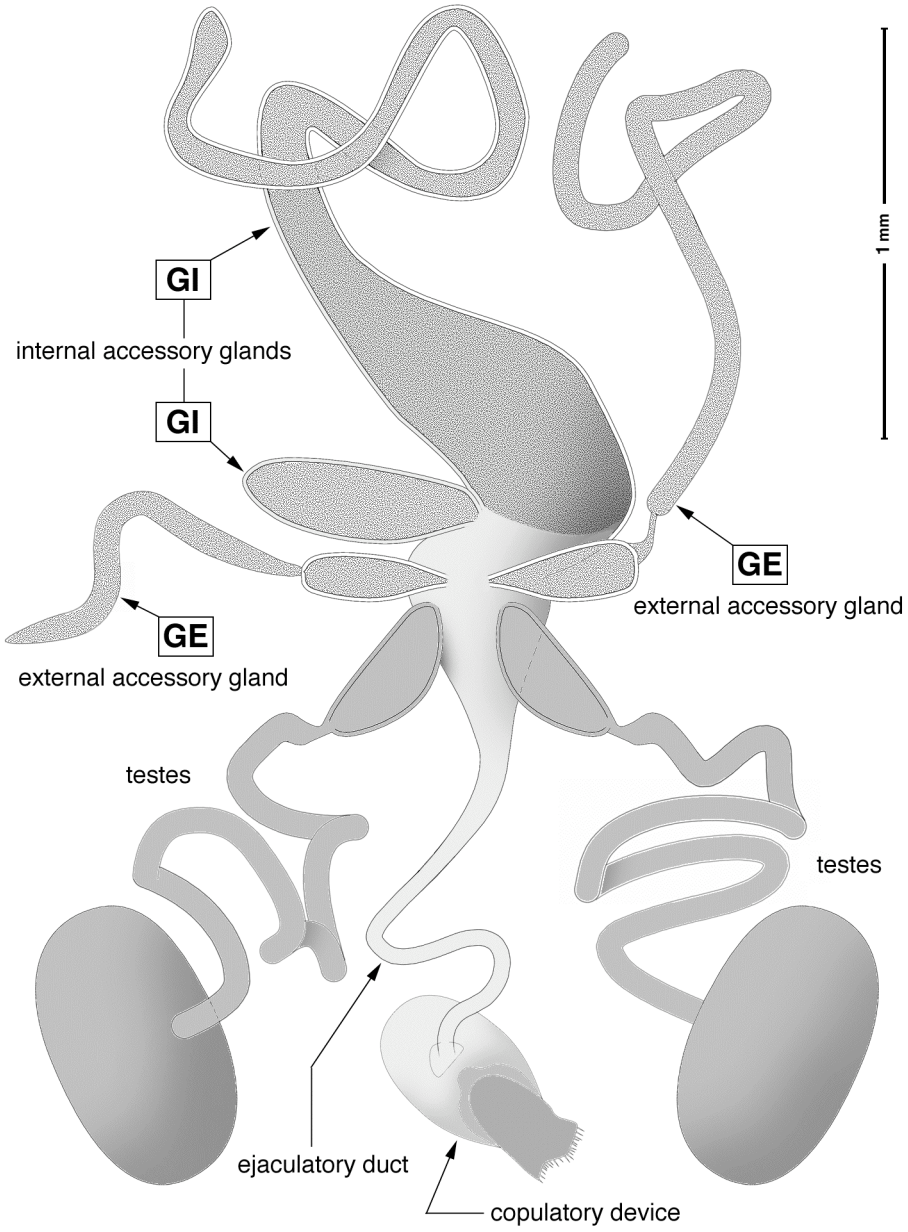

Fig. 4 – *Megarthrus affinis* Miller (Proteininae): male genitalia.

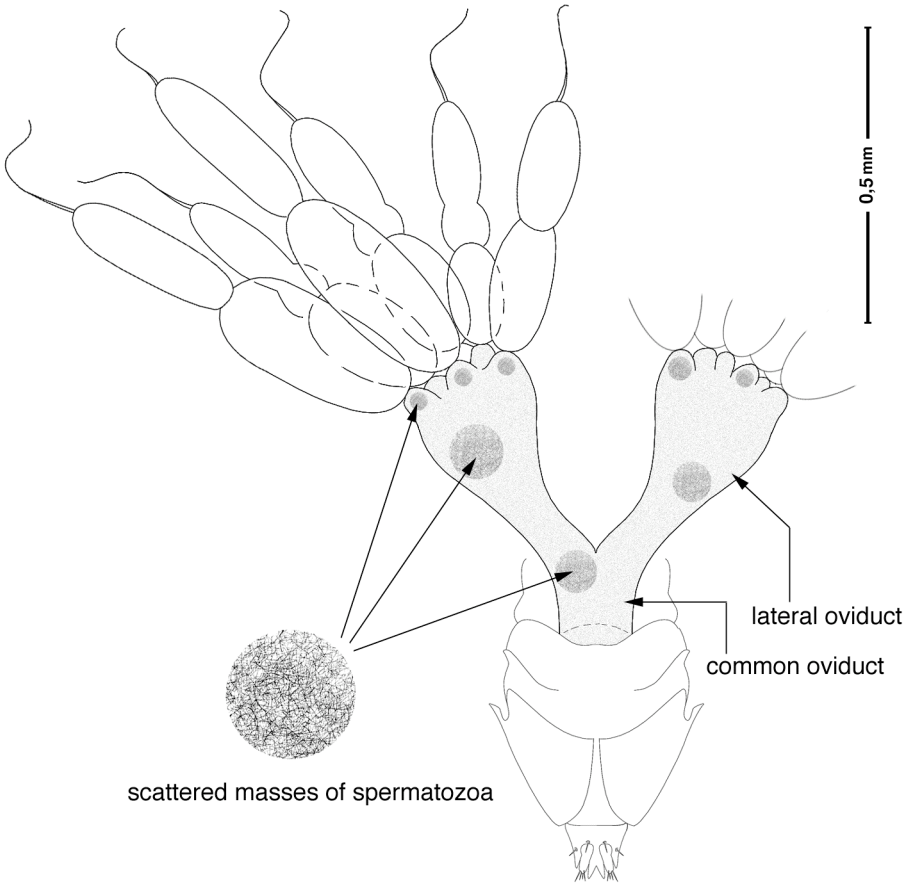

Fig. 5 – *Megarthrus affinis* Miller (Proteininae): genitalia of an inseminated female.