

NOTES ON TROGODERMA SPECIES (COLEOPTERA, DERMESTIDAE) OF IRAQ

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ABSTRACT

Five species of *Trogoderma* Berthold are reported from Iraq. These are: *T. inclusum* LeCont., *T. granarium* Everts, *T. variable* Ballion, *T. bactrianum* Zantiev and *T. irroratum* Reitter. A key to the species is presented, with redescrptions and illustrations of all species.

INTRODUCTION

Trogoderma Berthold is one of the largest genus in the family Dermestidae. It includes more than 120 species (Morcskowski, 1968). some of them are economically important. Several work have been done on the species of this genus in different part of the world such as Hinten (1945). Beal (1954) and Zantiev (1976). In Iraq no work has been done on this group except that some species appeared in faunistic lists such as Hussain (1963). who reported *T. granarium* Everts. and *T. versicolor* creuts. (*T. inclusum* LeCont.). El-Haidari et al. (1972) recorded *T. inclusum* and Thompson (1977) reported *T. variable* Ballion. Mawlood (1985) classified three specie *T. inclusum*, *T. granarium* and *T. irroratum*. and Abdul-Rassoul (1996) added *T. bactrianum* Zantiev for the Iraqi lists. This work presents redescription and distinguishing five species of *Trogoderma* so far have been found in Iraq.

MATERIALS AND METHODS

The specimens were collected during March to August 1989 from different localities in Baghdad. Diyala. Erbil and Mosul. The specimens were placed in boiling water for ten minutes to soften their parts. Then the parts were separated by two fine pins, to remove parts and put in 10% KOH which placed in water bath for five to fifteen minutes. After that placed in distilled water for few more minutes in order to neutralise the alkali. The parts are placed in ethyl alcohol 75% and dissected under microscope, then these parts were placed in Canada balsam to support slides for subsequent examination under microscope.

RESULTS AND DISCUSSIONS

Key to species of adult *Trogoderma* Berthold found in Iraq

- 1- First abdominal sternite with femoral lines (Fig. 5). Compound eyes rounded. with inner margin strongly emarginated *T. inclusum*
- First abdominal sternite without femoral lines (Fig. 16). Compound eyes oval or rounded. with inner margin feebly or not emarginated 2
2- Elytra unicolours. reddish brown or with darker vaguely defined markings surface (Fig. 8). Antennal club with five segments in male (Fig. I). Lateral part of bridge joining paramers in male genitalia broader than its transversal part (Fig.11) *T. granarium*

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- Elytra bicolours. reddish brown to black with pale or reddish brown bands or spots. Antennal club with more than five segments in male. Lateral part of bridge joining paramers about as broad as its transversal part 3
- 3- Antennal club with eight segments in male (Fig. 12). Ninth abdominal tergite with proximal margin of broader part clearly sinuate (Fig. 15) T. variable
- . Antennal club with six or seven segments. Ninth abdominal tergite with proximal margin of its broader part straight or slightly sinuate (Fig. 21.26).....4
- 4- Terminal segment of antennal club longer than ninth and tenth segment compained (Fig. 18). Anterior edge of eighth abdominal tergite clearly sinuate (Fig. 20). Aedeagus clearly shorter than paramers (Fig. 22)T. bactrianum
- Terminal segment of antennal club shorter than ninth and tenth segments compained (Fig. 23). Anterior edge of eighth abdominal tergite slightly sinuate (Fig. 25). Aedeagus slightly shorter than paramers (Fig. 27)T. irroratum

Trogoderina inclusum LeConte

Adult.- Length. 2.5-5.0 mm.; breadth. 1.2-2.5mm. Body oval. Head as seen from dorsal view, small. Usually deflexed. most of it hidden underneath pronotum: its surface with rounded or irregularly shaped punctures. which are as coarse as facet: of eye; inner margin of compound eyes strongly emarginated. Antenna with eleven segments: antennal club consist of six or seven segments in male, and four or five segment in female: terminal segment of club twice as long as broad in male (Fig. I) and not longer than broad in female. Mentum with anterior margin less imarginated.

Pronotum black to reddish brown with vague pale lateral maculatus and with punctures as fine as or finer than facet of eye, and with patch of white or nearly white hairs on middle of its base and sides. Elytra (Fig. 2) bicolours with black to reddish brown bands and spots and with punctures slightly but distinctly coarser than those of pronotal disc. Prosternum with broad and low median longitudinal carina on process or with process flat or feebly convex. Mesonotum with elevated part on both sides of sulcus as wide as or wider than long. Metasternum with latero-discal striae distinct. Legs dark to pale brown. with tarsi usually pale but rarely dark. Abdomen always with five segments clearly visible from ventral side: first abdominal sternite with lateral discal striae extending obliquely outward from inner margins of metacoxal cavities (Fig. 5). Transversal part of bridge joining paramers in male genitalia shallower than its lateral part (Fig. 6). Eighth abdominal tergite with lateral margin straight and trapesoidal in shape, setae along margin sensser, but sparse or lacking medially (Fig. 8). Ninth tergite with anterior margin of broader part stright or slightly sinuate (Fig. 4).

Specimens studied: Iraq: Baghdad, May 1983: Erbil. November. 1989 from dried insect collections and from cereal products.

Trogoderma granarium Everts

Adult: Body. small oblong-oval: length, 1.6-3.0mm.. braedth. 0.9- 1.7mm. Head with punctures distinctly finer than facets of eye. Inner margin of compound eyes feebly emarginate. Autennal club with five segment in male and four segments in female: terminal segment a long as broad in male (Fig. 7), and not longer than its width in female. Mentum with anterior margin shallowly to emarginate.

Pronotum drak brown, sometimes nearly black with indistinct patches of yellowish or white hairs on both sides and its middle base. Elytra (Fig. 8) unicolours. with reddish brown or with darker vaguely defined markings: its surface with punctures shallow rounded and four times coarser than facets of eye. Prosternum with process not carinate but with median gibbosity on apex. Mesosternum with latero-discal striae absent or very short and indistinot. Legs pale

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brown; first abdominal sternite without lateral discal striae. Transversal part of bridge joining paramers in male genitalia broader than its lateral part (Fig. 11). Eighth abdominal tergite with lateral margin rounded in shape and with more or less sclerotised setae along sometime tending to be grouped medially (Fig. 9). Ninth abdominal tergite with proximal of its broader part U in shape (Fig. 10); tenth tergite with many long setae.

Specimens studied: Iraq: Baghdad, March. 1983; Mosul. August. 1983 from cereals.

Trogoderma variable Balion

About: Body oval; length 3.0-4.5mm.: breadth 1.0-1.9mm. Head with punctures on anterior part of frons and clypeus shallow and twice as coarse as facets of eye. Inner margin of compound eyes straight or vary slightly emarginate. Antennal club consists of eight segment in male and four segments in female: terminal segment of club slightly shorter than eighth. Ninth and tenth segment combined (Fig. 12) in male. Mentum with anterior margin slightly emarginated. 4

Pronotum black, covered with dark hair and with large patch of golden-brown hairs on both sides; its surface with punctures about as coarse as facets of eye. Elytra bicolours. reddish brown to black with yellow red to reddish brown spots. Prosternum with process moderately narrow: mesosternum with elevated part on either side of sulcus as long. Metasternum not marked with discal striae. Legs with femora dark brown, tibiae and tarsi light. First abdominal sternite without lateral discal striae (Fig. 16). Transversal part of bridge joining paramers in male genitalia with slight inward curve and about as broad as its lateral part (Fig. 17). Eighth abdominal tergite almost semicircular in shape. more evenly sclerotised. setae along margin sparser tending to be shorter medially (fig. 14). Ninth tergite with proximal margin of broader part clearly sinuate (Fig. 15). Tenth tergite with few short setae (Fig. 10).

Specimens studied: Iraq: Baghdad. May. 1984 from insect collection.

Trogoderma bactrianum Zantiev

Adult: body oval to subparallel: length. 2.5-4.8mm.: breadth. 2.0-2.5mm. Head with punctures as coarse as facets of eye. Inner margin of compound eyes straight. Antennal club consists of seven segments in male and five segments in female: terminal segment of club slightly longer than ninth and tenth segments combined (Fig. 18) in male. Mentum with anterior margin nearly straight.

Pronotum dark brown, sometimes nearly black, with punctures finer than facets of eye. Elytra (Fig. 19) bicolours. reddish bands and spots: its surface with punctures twice as coarse as facets of eye. Prosternum with process rather narrow: mesosternum with elevated part on both side of sulcus oval in shape, about twice as long as wide. Metasternum with both sides having short striae. Legs light brown. First abdominal sternite without lateral discal striae. Transversal part of bridge joining paramers in male genitalia slightly broader than its lateral part (Fig. 22). paramers with dense hairs. Eighth tergite with lateral margin circular in shape. setae along margin dense. Ninth tergite with proximal margin of broader moderately sinuate (Fig. 21). Tenth tergite with few long setae (Fig. 21).

Specimens studied: Iraq: Baghdad. June. 1978 from dead insect collection.

Trogoderma irroratum Reitter

Adult: body oval; length 2.2-2.8mm.: breadth. 1.2-1.5mm. Head small. with punctures finer than facets of eye. Inner margin of compound eyes straight. Antennal club consists of six or seven segments in male, and tenth segments together in male (Fig. 23). Mentum with anterior margin nearly straight.

Pronotum black with vague pale maculatus on each side: its surface with punctures finer than facets of eye. Elytra (Fig. 24) black with three reddish brown bands and few small spots: its surface with punctures as coarse as facets of eye. Transversal part of bridge joining paramers

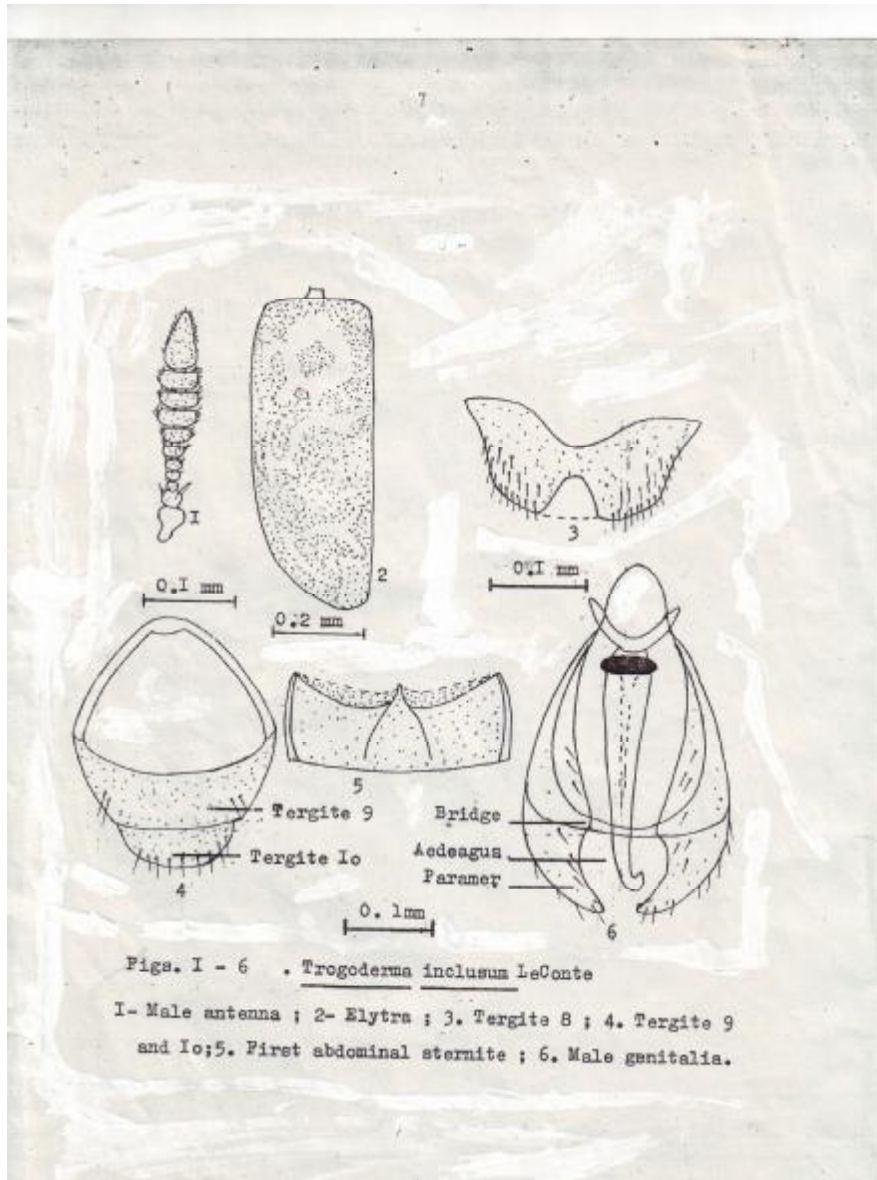
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in male about as its lateral part and tending to be straight (Fig. 27). Eighth abdominal tergite with lateral margin rounded in shape and with many long setae (Fig. 25). Ninth tergite with proximal margin of broader section clearly sinuate (Fig. 26). Tenth tergite with few short setae (Fig. 26).

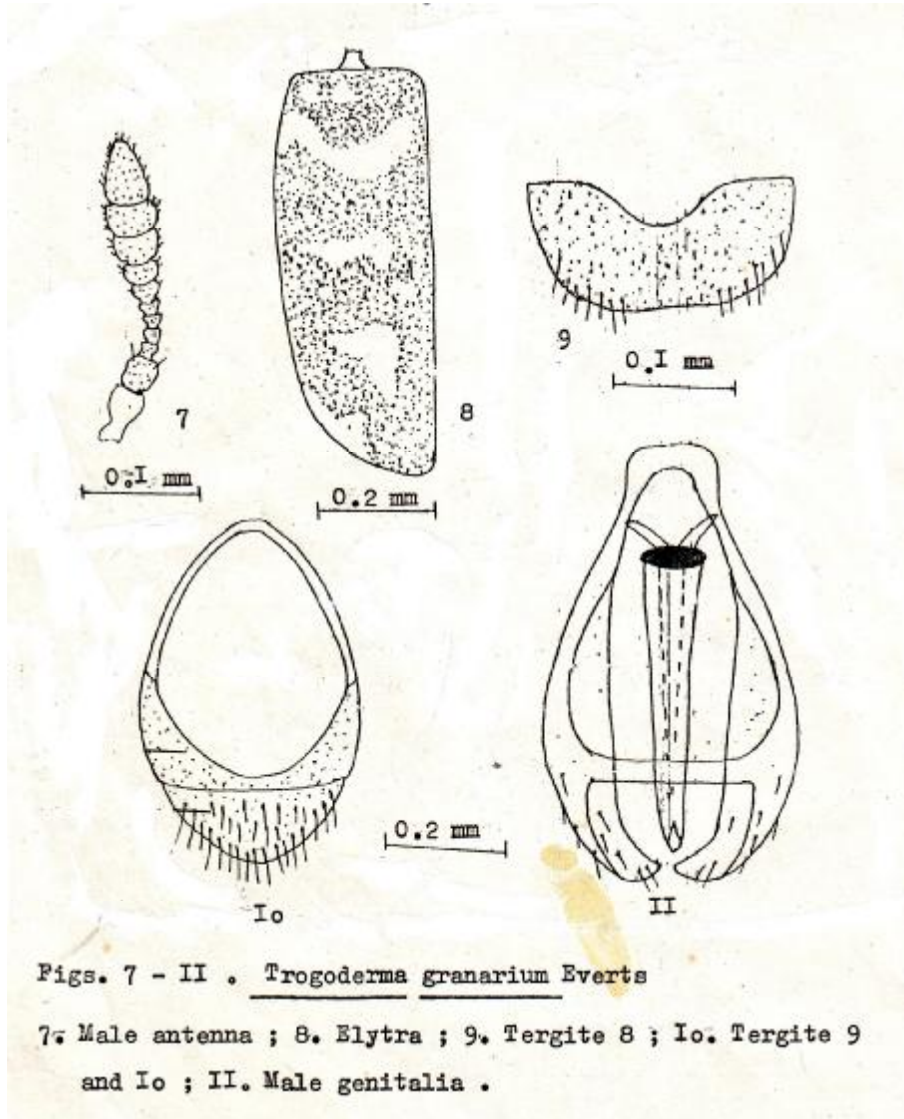
Specimens studied: Iraq: Baghdad. February. 1983 and November. 1984; Erbil. May' 1988. from box of dead insects and arachnid collection.

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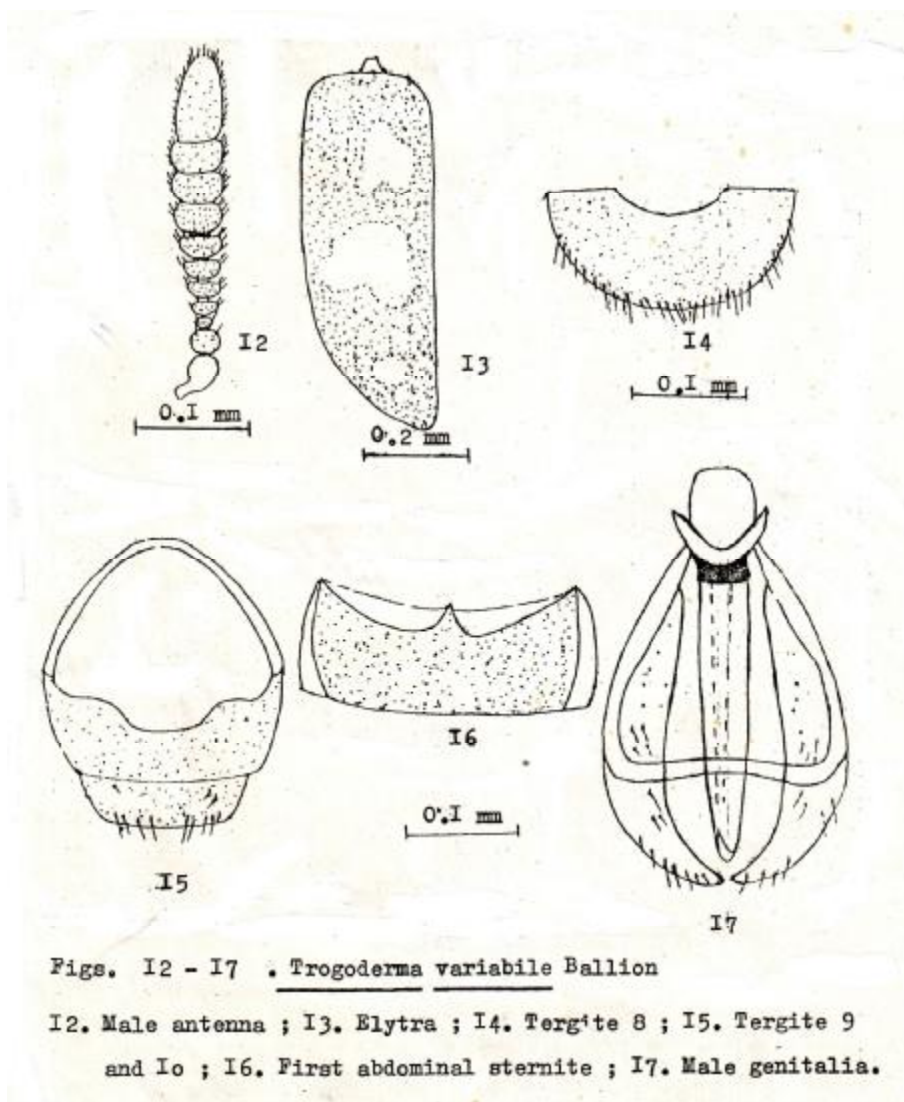


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Figs. 7 - 11 . Trogoderma granarium Everts

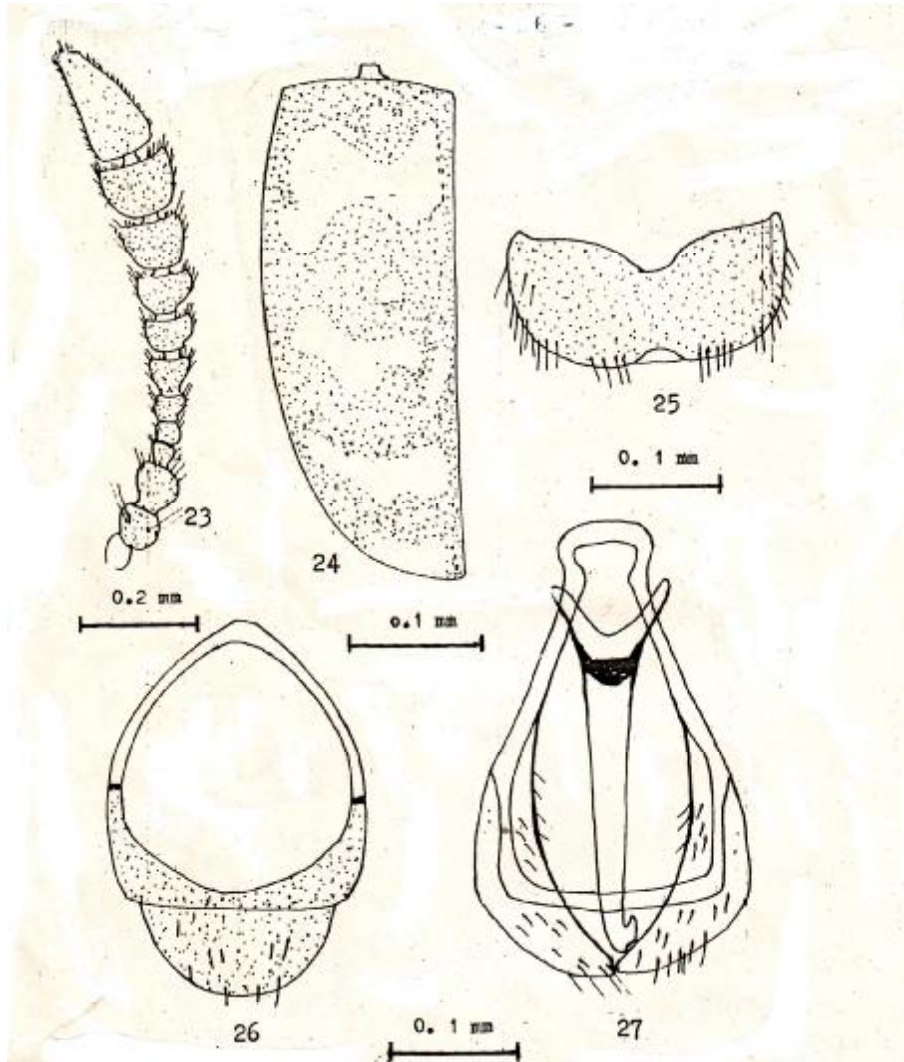
7. Male antenna ; 8. Elytra ; 9. Tergite 8 ; 10. Tergite 9
and 10 ; 11. Male genitalia .



Figs. I2 - I7 . Trogoderma variabile Ballion

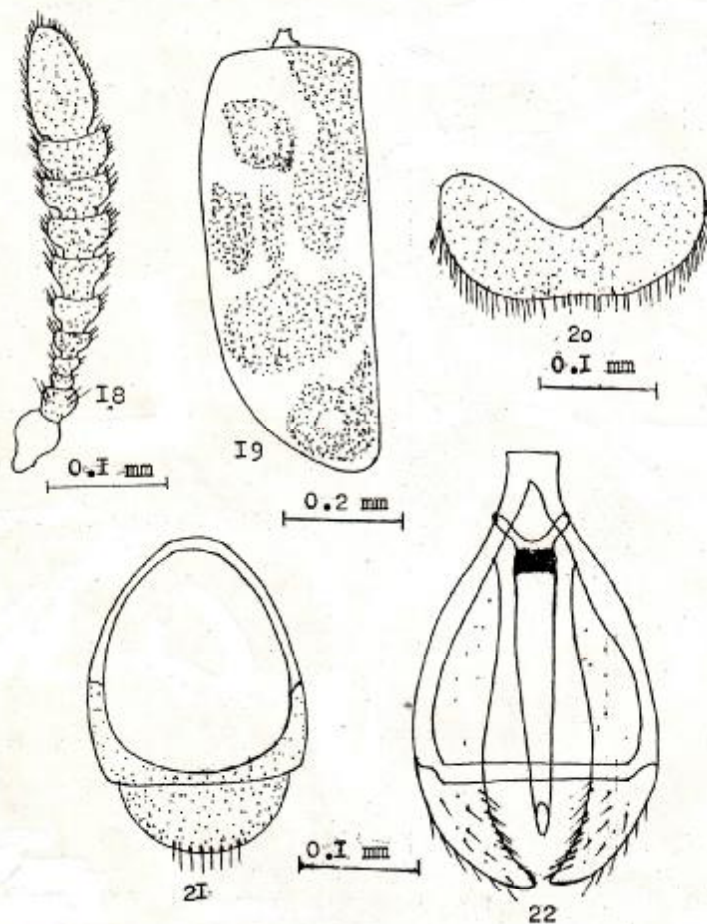
I2. Male antenna ; I3. Elytra ; I4. Tergite 8 ; I5. Tergite 9 and 10 ; I6. First abdominal sternite ; I7. Male genitalia.

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Figs . 23 - 27 . Trogoderma irroratum Reitter

23. Male antenna ; 24. Elytra ; 25. Tergite 8 ; 26. Tergite 9
and Io ; 27. Male genitalia .



Figs. 18 - 22 . Trogoderma bactrianum Zantiev

18. Male antenna ; 19. Elytra ; 20. Tergite 8 ; 21. Tergite 9
and 10 ; 22. Male genitalia .

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