

Slugs of the family Anadenidae Pilsbry, 1948 (Gastropoda, Pulmonata) with descriptions of two new subgenera and three new species

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ABSTRACT. New subgenera, *Sagarmathia* subgen. nov. (gen. *Anadenus*) and *Vietanadenus* subgen. nov. (gen. *Anadeninus*) and three new species, *Anadenus (Sagarmathia) kuznetsovi* sp. nov., *Anadeninus (Vietanadenus) sapaensis* sp. nov., and *Anadeninus (Neoanadenus) susanna* sp. nov. are described.

The name Anadeninae has been introduced by Pilsbry [1948] as a subfamily of Arionidae Gray, 1840. Wiktor et al. [2000] raised the Anadeninae to the family rank. According to these authors the family Anadenidae comprises exclusively Asian species of the genus *Anadenus* Heynemann, 1863. Its range embraces northern India up to Kashmir and Pakistan, Nepal and southern China — along Himalayan mountain chain. At present Anadenidae includes 20 nominal species and 2 genera: *Anadenus* and *Anadeninus*; each consisting of 2 subgenera.

As a result of the study of new material and analysis of earlier published data, 3 new species and 2 new subgenera are described.

Abbreviations of depositories:

MHNG — Museum d'Histoire Naturelle, Geneva
NHM — The Natural History Museum, London
MNW — Naturhistorisches Museum Wien
ZMMU — Zoological Museum of Moscow State University

Abbreviations in figures:

AG — albumen gland, AO — penial accessory organ, AOP — penial accessory organ pore, E — epiphallus, EP — epiphallic pore, FO — free oviduct, HG — hermaphroditic gland, MB — muscular band, P — penis, PR — penial retractor, RS — reservoir of spermatheca, Sp — spines (fleshy or calcareous processes) in penis, Sti — stimulator (ligula), T — talon, V — verge, Va — vagina, VD — vas deferens.

Family Anadenidae Pilsbry, 1948

Pilsbry, 1948: 676 (Arionidae subf.); Wiktor et al., 2000: 14; Wiktor, 2001: 5.

Large or medium-sized slugs. Shell flat, ovate,

inconspicuously asymmetrical, completely buried in mantle. Cephalopodium without caudal foss, back rounded, posteriorly without a keel. Mantle covering up to $\frac{1}{2}$ of body length; pneumostome median or slightly postmedian in position.

Sole undivided or vaguely tripartite.

Jaw odontognathous.

Posterior insertion of buccal and tentacular retractors widely separated.

Reproductive tract with long vas deferens, its distal part sometimes more or less distinctly transformed into epiphallus. Penis internally with verge; stimulator or hard, sometimes calcareous elements (spines, hooks or plates) may be present. Spermatophore slender, coiled, ends with a thread-like section equipped with a minute hook.

Distribution. Northern India, Nepal, southern China, northern Vietnam.

Anadeninus Simroth, 1912

Simroth, 1912: 526.

Type species — *Anadenus sechuenensis* Collinge, 1899; designated here.

Slugs of medium size.

Penis contains verge as a result a partially invaginated epiphallus. Ligula (stimulator) in penis may be present. Inner surface of penis lacking spines. Sometimes there is a lateral additional organ on penis.

Distribution. Northern India, southern China, northern Vietnam.

Remark. In the original description Simroth [1912] mentioned 2 species: *sechuenensis* Collinge, 1889, and *dautzenbergi* Collinge, 1900. We select the former as the type species because it is the only species whose anatomy is known.

Anadeninus (Anadeninus s. str.)

Penis lacking an additional organ. Lumen of verge capacious. Epiphallic pore (sub)terminal.