

POLYCLADS OF ANDAMAN AND NICOBAR ISLANDS

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ABSTRACT

In India, 37 flatworm species of the order Polycladida are known. Out of these 22 species are recorded from Lakshadweep and 12 are recorded from Andaman and Nicobar Islands while 3 species are common from both areas. The present paper is an attempt to make a cumulative account of the species present in Andaman and Nicobar group of Islands. However the knowledge about these beautiful marine worms is very limited and emphasise the necessity of further studies required to understand these animals from Indian region.

Keywords: Polyclad, Pseudocerotidae, Andaman and Nicobar.

INTRODUCTION

The Union Territory of Andaman and Nicobar are a group of islands present at the juncture of the Bay of Bengal and Andaman Sea. This archipelago consists of 572 islands with an aggregate coastline of about 1962km. The continental shelf area is estimated to be about 16000 sq. km. Due to their presence in tropical climate; these islands are home for one of the best coral reefs in the world giving habitat to a variety of marine animals.

Polyclads also called as marine flatworms comes under order Polycladida (Lang, 1884) are very diverse and flamboyantly coloured free living worms and are prominent members of coral reef community. The word Polyclad is made up of two words i.e poly=many and clad= branches. They are named in such a way as their gut divides into many branches as it radiates away from their mouth. These animals were first described by Arnold Lang in his first comprehensive account, Polyclads of the Bay of Naples, in 1884. In contrast to this, the first account on these animals from India came in 1902 by F.F Laidlaw in which he gave information of about 15 species from Laccadive (Lakshadweep) archipelago. After this the only accounts are given by Sreeraj and Raghunathan (2011; 2013) from Andaman and Nicobar Islands and Apte and Pitale (2011) from Lakshadweep. The gap of over a century since its first description from India in 1902 clearly showed that the studies on flatworms are seriously neglected and the information regarding these beautiful creatures is very limited from Indian context.

MATERIALS AND METHODS

Specimens were hand-collected using a paint brush from the intertidal areas and by employing SCUBA diving and snorkelling in sub tidal areas of Andaman and Nicobar Islands. Specimens were photographed *in-situ* using Sony Cyber-Shot TSC900 with underwater housing, collected in separate containers and brought to laboratory where photographs were taken for live specimen with minute details. Animals were fixed in 10% formalin buffered with sea water after relaxing them in 5% alcohol and after 24 hours were kept in 70% alcohol for long term preservation. The morphological features and measurements were examined using a stereo zoom microscope (Lecia, DFC-500). Identification was based on Newman & Cannon 2003 & 2005). All the identified materials were deposited in National Zoological Collections at Zoological Survey of India, Andaman and Nicobar Regional Centre.

RESULTS AND DISCUSSION

The present study recorded 15 species and many undescribed species of polyclads from Andaman and Nicobar Islands. All these species belongs to family Pseudocerotidae. This clearly shows the dominance of pseudocerotid flatworms in the fauna of Polyclads of these islands. The morphological description and distribution of Polyclads reported from Andaman and Nicobar Islands are given below:

Family: Pseudocerotidae (Lang, 1884)

1. *Pseudoceros indicus* Newman & Schupp, 2002 (Fig. 1a)

Description: Body oval and elongate in shape, background body colour cream. Well defined, separate, royal blue spots along margin, spots uneven in size and spacing.

Distribution: World: Australia, Indonesia and Maldives. India: Andaman and Nicobar Islands (Havelock, Chidiyatapu and Aves Island), Lakshadweep Islands.

2. *Pseudoceros goslineri* Newman & Cannon, 1994 (Fig. 1b)

Description: Body elongated with background colour cream mottled with pink and white, usually darker medially. Margin with blue or purple spots. Pseudotentacles are simple folds. Cerebral eyes about 20 to 30 in a cluster.

Distribution: World: Australia, Indonesia, Marshall Islands and Papua New Guinea. India: Andaman and Nicobar Islands (Delgarno Island, Campbell Bay and Burmanallah) and Lakshadweep.

3. *Pseudoceros bifurcus* Prudhoe, 1989 (Fig. 1c)

Description: Body small in size, about 5 – 8 mm. Background body colour blue with a prominent dark purple bordered median stripe which ends before posterior margin. No marginal bands.

Distribution: World: Australia, Japan and Madagascar. India: Andaman and Nicobar Islands (Chidiyatapu, Campbell Bay and Little Andaman).

4. *Pseudoceros gamblii* Laidlaw, 1902 (Fig. 1d)

Description: Background body colour milky-white with no spots or blotches on the body. Outer margin blue in colour. 25-30 cerebral eyes. This species was first described by Laidlaw (1902) from Laccadive Islands.

Distribution: World: Australia. India: Andaman and Nicobar Islands (Diglipur) and Lakshadweep.

5. *Pseudoceros confusus* Newman & Cannon 1994 (Fig. 1e)

Description: Background body colour cream with four to five marginal bands; inner black, orange, black and

yellow at rim. Easily confused with *P. intermittus* and *P. contrarius*.

Distribution: World: Australia. India: Andaman and Nicobar Islands (Havelock Island).

6. *Pseudoceros rubronanus* Newman & Cannon, 1998 (Fig. 1f)

Description: Background body colour deep red with numerous white spots all over the body. Spots sometimes are dense medially. This species is often confused with *P. irretitus*.

Distribution: World: Australia, Indonesia, Japan and Maldives. India: Andaman and Nicobar Islands (South Button Island).

7. *Pseudoceros tristriatus* Hayman, 1959 (Fig. 1g)

Description: Background body colour blue with three prominent orange colour stripes on body. These stripes are often bordered with black. Lateral stripes joined posteriorly.

Distribution: World: Australia, Indonesia, Mozambique and Papua New Guinea. India: Andaman and Nicobar Islands (Havelock Island).

8. *Pseudoceros intermittus* Newman & Cannon, 1995 (Fig. 1h)

Description: Background body colour white or cream with three marginal bands; inner orange, black and outer yellow band. A white median stripe is present. White spot between pseudotentacles. Easily confused with *P. confusus*.

Distribution: World: Australia. India: Andaman and Nicobar Islands (Havelock Island).

9. *Pseudoceros concinnus* (Collingwood, 1876) (Fig. 1. i)

Description: Body elongate about 15-20 mm long. Background body colour cream or fleshy with continuous blue outer margin. Presence of a blue median stripe without touching posterior margin.

Distribution: World: Indonesia, Philippines and Vietnam. India: Andaman and Nicobar Islands (Havelock Island, Burmanallah, Chidiyatapu, Campbell Bay).

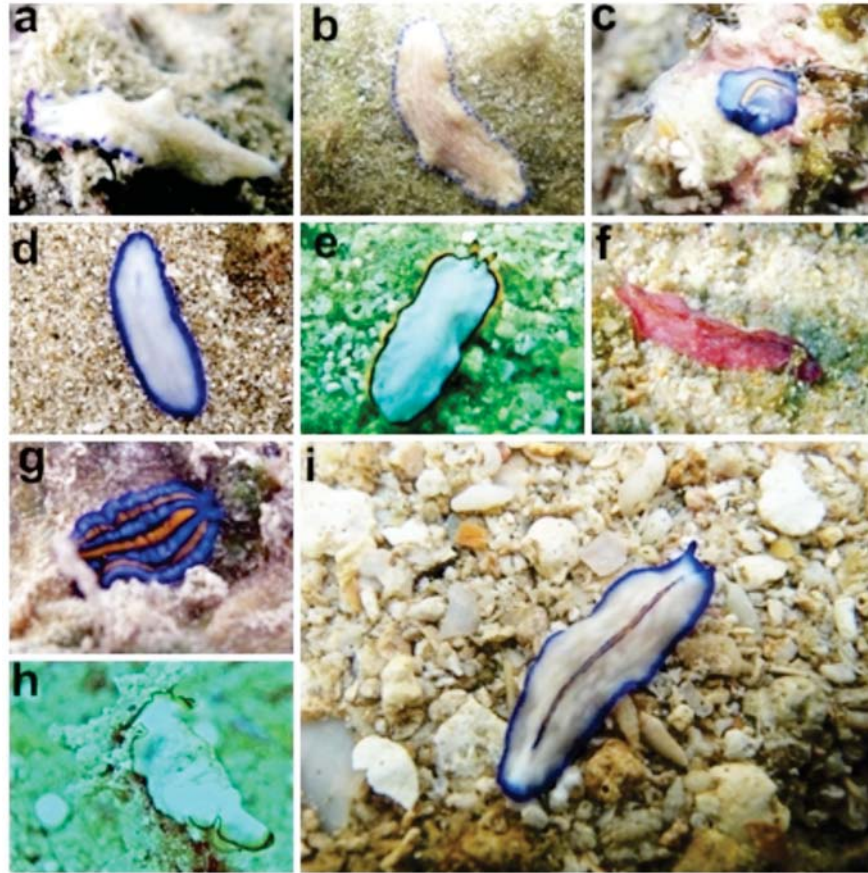


Fig. 1: (a) *Pseudoceros indicus* (b) *Pseudoceros goslineri* (c) *Pseudoceros bifurcus* (d) *Pseudoceros gamblei* (e) *Pseudoceros confuscus* (f) *Pseudoceros rubronanus* (g) *Pseudoceros tristratus* (h) *Pseudoceros intermittus* (i) *Pseudoceros concinnus*

1. *Pseudoceros prudhoei* Newman & Cannon, 1994 (Fig. 2 j)

Description: Body elongate with a very ruffled margin. Size about 30 to 35 mm. Background body colour light to dark brown. Outer margin is of yellow colour.

Distribution: World: Australia, Kenya, Marshall Islands and Micronesia. India: Andaman and Nicobar Islands (Campbell Bay).

2. *Pseudobiceros bedfordi* Laidlaw, 1903 (Fig. 2k)

Description: Also known as Persian carpet worm. Body oval in shape, background colour variable with numerous yellow spots all over the body. Many stripes with black outline are present. Outer margin black in colour. Pseudotentacles ear like.

Distribution: World: Australia, Indonesia, Japan, Maldives and Marshall Islands. India: Andaman and Nicobar Islands (Havelock Island and Campbell bay).

3. *Pseudobiceros hymanae* Newman & Cannon, 1997 (Fig. 2 l)

Description: Background colour black with a wide orange marginal band and a narrow black outer rim. Margins not highly ruffled. Pseudotentacles small and ear like with same marginal bands.

Distribution: World: Australia, Solomon Islands, Maldives and Papua New Guinea. India: Andaman and Nicobar Islands (South Button Island).

4. *Pseudobiceros damawan* Newman & Cannon, 1994 (Fig. 2 m)

Description: Background colour grey with mottled white spots. Presence of narrow outer black rim with an orange marginal band with white spots. Pseudotentacles small and ruffled.

Distribution: World: Australia, South Africa, Marshall Islands and Papua New Guinea. India: Andaman and Nicobar Islands (Little Andaman).

5. *Pseudobiceros flavocanthus* Newman & Cannon, 1994 (Fig. 2 n)

Description: Background colour black with two marginal bands. Inner band blue in colour which tends to fade on its outer side and outer most band is yellow in colour. Margin highly ruffled. Ventrally grey in colour.

Distribution: World: Papua New Guinea. India: Andaman and Nicobar Islands (Campbell Bay).

6. *Thysanozoon nigropapillosum* Hayman, 1959 (Fig. 2 o)

Description: Background colour black with numerous small yellow tip papillae. Outer margin whitish or pale yellowish. Pseudotentacles erect.

Distribution: World: Indo-Pacific region. India: Andaman and Nicobar Islands (Jolly Buoy Island).

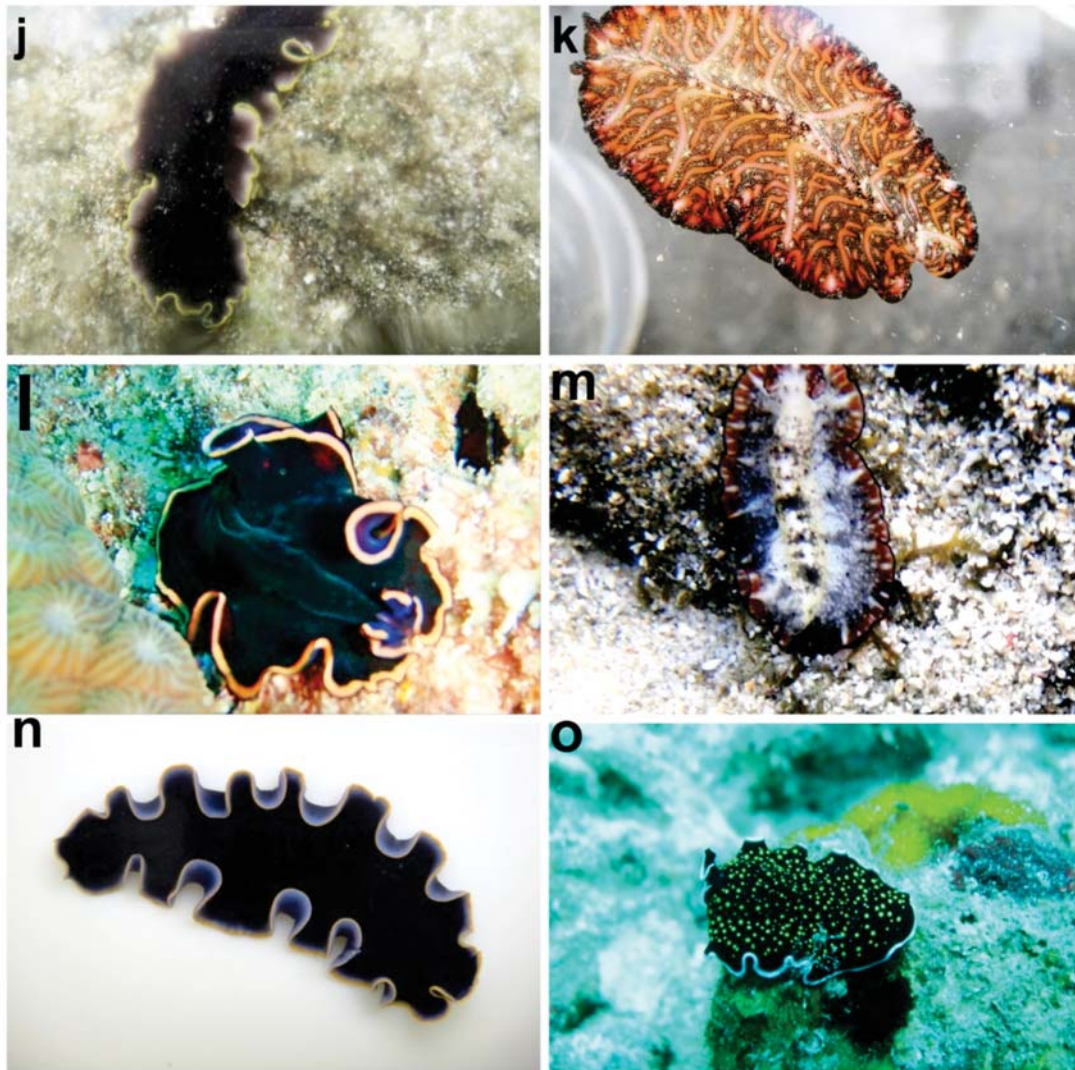


Fig. 2: (j) *Pseudoceros prudhoei* (k) *Pseudobiceros bedfordi* (l) *Pseudobiceros hymanae* (m) *Pseudobiceros damawan* (n) *Pseudobiceros flavocanthus* (o) *Thysanozoon nigropapillosum*

Polyclads have been known as inhabitants of the tropical coral reefs from last 150 years. They are among the simplest of flatworms and flatworms are among the simplest of all animals with reproductive system among the most complex in the animal kingdom. As far as Indian region is concerned, special attention has to be made to study marine flatworms in order to document and to understand these colourful animals. Studies especially DNA molecular techniques should be encouraged as it play an important role in taxonomy and phylogenetic studies of these animals.

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