

An assessment of nudibranchs (Mollusca: Euthyneura) biodiversity in Mauritius

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Species form the basic unit of biodiversity. They provide economic, pharmacological and public health importance while some can be used as bio-indicators of either environmental quality or climate change. Cataloguing a list of species is also an element of biodiversity. Without prior knowledge of the different species present in the same environment, it is difficult to move towards a sustainable management. Nudibranchs constitute one of the most diverse group of opisthobranchs. They are also known as “butterflies of the sea” as a result of their spectacular coloration. Nudibranchs are recognised to possess important pharmacological potency such as cytotoxicity to a number of tumor cell lines. They can also be used to detect and monitor fine-scale climate change along the coast. They are able to forecast ups and downs in the populations of other species with long pelagic larval periods. Reports of nudibranchs occurrence from Mauritius Island date back from 1832 arising from expedition and systematic records. The most recent review of the biodiversity of opisthobranchs in Mauritius date back to 1991 whereby 23 nudibranchs species belonging to eight families were identified. The present study aims to provide an inventory of nudibranchs species from the lagoon of Mauritius. It outlines a list of species found in three study sites: the south west part of Mauritius, near Port Louis areas and at Pointe aux Feuilles. Samples were collected through snorkelling during daylight at both low and high tides. Specimen collected were morphologically identified using characters such as dorsal and ventral colour pattern, length of specimen, presence or absence of rhinophore and gill sheath. DNA were also extracted but not yet amplified. This is still an ongoing research, with the aim of sampling throughout the coast of the island for a period of two years, employing both snorkelling and scuba diving. A total of 17 specimen have been collected till now and morphologically identified. Species collected belonged to seven families. Out of the 17 specimen collected, 29% belongs to the Phyllidiidae, equal amount of species belonging to the Chromodorididae and Polyceridae (24%) were also found. Phyllidiidae are known to display themselves during daylight which might explain the high percentage of phyllid recorded. Species belonging to the family Dorididae, Discodorididae, Dendrodorididae and Proctonotidae were also collected. Specimen identified includes *Dendrodoris nigra*, *Martadoris limaciformis*, *Platydoris scabra*, *Phyllidiella meandrina*, *Phyllidiella cf. meandrina*, *Phyllidia ocellata*, *Phyllidia marindica*, *Phyllidiopsis gemmata*, *Doridoidea sp.2*, *Janolus sp.1*, *Tyrannodoris luteolineata*, *Tambja morosa*, *Tambja affinis*, *Hypselodoris whitei*, *Hypselodoris infucata*, *Hypselodoris pulchella* and *Goniobranchus conchyliatus*. Most species have been collected in the south west region of Mauritius where the environment is identified as pristine. Surprisingly, nudibranchs species have also been observed near Port Louis area which is regarded as polluted. It contained five species belonging to the family Chromodorididae and Polyceridae. This study demonstrates that nudibranchs can adapt to a wide range of habitats. Studying the way nudibranchs can adapt to such polluted environment would broaden our knowledge towards their biology. Providing an

inventory of nudibranchs species in Mauritius is highly important, not only because they provide key molecules of medical importance but also to be able to design better ways of conserving them in the future, if the need arises. With a wide maritime zone and considered as a striking biodiversity hotspot, further species might be recorded from Mauritius.

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