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Ngirhaphium Evenhuis & Grootaert from southern Thailand (Diptera: Dolichopodidae) with the description of a new species

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Abstract

The genus *Ngirhaphium* Evenhuis & Grootaert, 2002 is reported for the first time from Thailand in particular from mangroves on the coast of the Andaman Sea in southern Thailand. Three species were found: *N. murphyi* Evenhuis & Grootaert, 2002, *N. sivasothii* Grootaert & Puniamoorthy, 2014 and *N. chutamasae* **sp. nov.** The latter species is described and illustrated and a key to all four known species is provided. COI barcode data showed that the new species is most closely related to *N. murphyi* with a genetic distance of 7%. The distance with the other species is 11 to 12%.

Key words: Dolichopodidae, *Ngirhaphium*, new species, mangrove, Thailand

Introduction

The genus *Ngirhaphium* Evenhuis & Grootaert, 2002 is a genus of large dolichopodid species that occurs only in the front mangrove and along creeks in mangroves (Grootaert & Puniamoorthy 2014). Hitherto three species were known exclusively from Singapore and it is the first time that the genus is reported from another country.

Here we report on three species found in mangroves along the coast of the Andaman Sea in southern Thailand: *N. murphyi* Evenhuis & Grootaert, 2002, *N. sivasothii* Grootaert & Puniamoorthy, 2014 and a new species for science that is described, illustrated and barcoded.

Material and methods

Study sites and sampling techniques. The present study is based on a survey of the marine dolichopodids in southern Thailand done by the first author (AS). Both Malaise traps and sweep netting techniques were used to collect fresh specimens in various mangroves in the provinces of Nakhon Si Thammarat, Songkhla, Pattani and Satun (Tammalang subdistrict) and Tarutao Island, all in southern Thailand. Terminology following Grootaert & Puniamoorthy (2014).

Specimen storage. The holotype and paratypes of the new species and other species are preserved in 70% ethanol to prevent the degradation of DNA and deposited in the collections of the Princess Maha Chakri Sirindhon Natural History Museum of the Prince of Songkhla University, Hat Yai, Thailand (PSU). Voucher specimens are also stored in the collection of the Royal Belgian Institute of Natural Sciences, Brussels (RBINS).

Genetic analysis. Total DNA was extracted from a pair of middle legs. The remaining portions of the specimens sampled were kept as voucher in PSU Natural History Museum. The sample tissues were placed into 1.5 ml sterile tubes and pulverized by adding 50 µl of tissue lysis buffer; eventually incubated at 65°C for 30 minutes. Subsequently, 2 µl of Proteinase K was added and incubated at 60°C overnight (24 hr.). The mixture was agitated with 7 µl of 8M potassium acetate for 5 minutes and incubated at -20°C for 30 mins before extraction of the

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Ngirhaphium murphyi and *N. sivasothii* also occur in Singapore. The geographic distance between the Singaporean populations and those in the Satun province (Tammalan, Tarutao Island) is about 800 km and the genetic distance between the two populations is less than 1% for *N. murphyi* and about 1% for *N. sivasothii* (Fig. 13). This is very low compared to another mangrove species, *Teuchophorus simplicissimus* Grootaert & Meuffels, which differed by 6.5% for COIb with a geographic distance of only 240 km between Singapore and Pulau Tioman (Lim *et al.* 2009).

Ngirhaphium chutamasae **sp. nov.** is most closely related to *N. murphyi* and they cluster with a bootstrap of 94 while the genetic distance is 7% (Fig. 13) The genetic distance between the new species and *N. sivasothii* and *N. caeruleum* is 11 % and 12 % respectively.

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References

Folmer, O., Black, M., Hoeh, W., Lutz, R. & Vrijenhoek, R. (1994) DNA primers for amplification of mitochondrial cytochrome c oxidase subunit I from diverse metazoan invertebrates. *Molecular Marine Biology and Biotechnology*, 3, 294–299.

Evenhuis, N. & Grootaert, P. (2002) Annotated checklist of the Dolichopodidae (Diptera) of Singapore, with new records and descriptions of new species. *Raffles Bulletin of Zoology*, 50, 301–316.

Grootaert, P. & Puniamoorthy, J. (2014) Revision of *Ngirhaphium* (Insecta: Diptera: Dolichopodidae), with the description of two new species from Singapore's mangroves. *Raffles Bulletin of Zoology*, 62, 146–160.

Lim, G.S., Hwang, W.S., Kutty, S., Meier, R. & Grootaert, P. (2009) Mitochondrial and nuclear markers of Oriental species support the monophyly of Dolichopodidae and suggest a rapid origin of the subfamilies (Diptera: Empidoidea). *Systematic Entomology*, 35, 59–70.
http://dx.doi.org/10.1111/j.1365-3113.2009.00481.x

Tamura, K., Stecher, G., Peterson, D., Filipski, A. & Kumar, S. (2013) MEGA6: Molecular Evolutionary Genetics Analysis version 6.0. *Molecular Biology and Evolution,* 30, 2725–2729.
http://dx.doi.org/10.1093/molbev/mst197