

The fauna of the Neotropics, comprising South America, due to isolation by two oceans is one of the most distinct in the world. It has in majority Gondwanian origins, i.e. derives from ancestors that had inhabited the supercontinent Gondwana, later broke up into Africa, South America, Antarctica and Australia. For vertebrates, there are only few cases of further crossing of this ocean barrier, in majority through Atlantic. However, in the case of invertebrates, and especially insects, the more common route of dispersal from the Neotropics to the Old World is through the Pacific Ocean, despite it is much longer than the transatlantic one. Among such colonisers are e.g. some termites and ants, that arrived to the Australasian realm on natural rafts of vegetation carried through the Pacific Ocean from South America. However, in a case of flying insects, such like moths, the dominant way of long distance dispersal to the other continent are hurricane winds periodically blowing over oceans. Such cases are generally rare, but all the time are discovered further examples of insects, including moths that reach the other continent in this way. Moreover, even rare cases of transoceanic dispersal can have an important impact on shaping the global patterns of fauna distribution. But exact routes of events of colonisation of the Old World tropical areas by newcomers from the Neotropics, and impact of the geological past of certain areas on its course are generally poorly understood.

An excellent group to conduct a study on this issue is genus *Euchromia*, belonging to the tiger moths (subfamily Arctiinae), comprising about 50 species. However they are members of a family belonging to the moths, these species are day-flying. Range of the genus extends from Africa through southern Asia to Fiji in Melanesia. However, it is the only member of its subtribe (*Euchromiina*) occurring in the Old World, because all remaining species live solely in the Americas. This group have evolved not earlier than 25 million years ago, thus when the arrangement of continents was almost modern. Therefore, the presence of *Euchromia* in the Old World tropics must be an effect of a transoceanic dispersal and further colonisation, connected with divergence into separate species, what makes the genus a convenient object for study these issues.

The aim of the project is to indicate the direction of dispersal to and routes of colonisation of the Old World by the genus *Euchromia*. By means of morphological (body traits) and molecular (sequences of eight genes) studies, relationship among species of this genus and with the evolutionary closest related South American genus *Syntomeida* will be revealed. This will allow to say whether the ancestor of *Euchromia* reached the Old World through the Atlantic or Pacific Ocean – tentatively assumed is the second option. Further, by estimation of divergence time of species, based on so called “molecular clock”, and comparison with timing of geological events that shaped the modern arrangement of land, will be indicated the most probably route of further colonisation from Oceania towards Asia and Africa. It will allow to answer the question, whether this colonisation occurred by land, or it was another episode of transoceanic dispersal by the winds blowing over the Indian Ocean towards Africa. Examined will be also impact of complex geological past of the Indian and Pacific Ocean on distribution of the genus. In this area, New Guinea is characterised by exceptionally high level of biodiversity, also in the case of *Euchromia* – there are twelve recorded species, including eight occurring solely there. At the same time, the area of Wallacea, located between New Guinea and Borneo, constitutes one of the most intriguing transition areas in the biogeography, between the Australasian and Oriental realms. In this area several borderlines have been proposed, separating mentioned realms, i.a. Wallace, Huxley and Lydekker lines. Wallacea probably is a barrier also for dispersal of *Euchromia*, since from Borneo only two species have been recorded. This project will contribute to a better understanding of the role of New Guinea as a source of biodiversity for other areas and Wallacea as a potential barrier in its propagation. Moreover, relationship of *Euchromia* with neotropical genus *Syntomeida* will be revealed, since some species of the latter can in fact belong to the former one. Thus, it may turn out that the genus *Euchromia* occurs in topical areas of both the Old and New World.

Results of research conducted during realisation of the project will contribute to a better understanding of mechanisms shaping patterns of fauna distribution in the Old World, in the context of dispersal from the New World.