Muzeum i Instytut Zoologii

Polskiej Akademii Nauk

Tytuł projektu/Project title

Filogeneza i biogeografia biedronek z rodzaju *Rhyzobius* - badania na podstawie analizy danych molekularnych, morfologicznych oraz kopalnych.

Phylogeny and biogeography of the ladybird beetle genus *Rhyzobius* - an integrative approach based on molecular, morphological and fossil data analysis.

PhD position (1 position) in the Museum and Institute of Zoology, Polish Academy of Sciences (Warsaw, Poland)

We are looking for a highly motivated PhD student to participate in the project: "**Phylogeny and biogeography of the ladybird beetle genus *Rhyzobius* - an integrative approach based on molecular, morphological and fossil data analysis**". The project will be carried out at the Museum and Institute of Zoology, Polish Academy of Sciences in Warsaw (Poland) under the supervision of dr hab. Karol Szawaryn. The project is financed by the Polish **National Science Centre**, which ensures a PhD student with a monthly tax-free research stipend of **5000 PLN** for three years. Project can be prolonged for the fourth year with a stipend of 3654 PLN gross funded by a Doctoral School fellowship.

Project description: Ladybird beetles (Coccinellidae) are common and well-known insects, however, their classification is very challenging. Despite of many recent efforts based on both molecular and morphological dataset, only a moderate improvement has been made. Only the higher classification was proposed but phylogeny of numerous tribes is still unresolved. Only integrative approaches utilizing molecular, morphological and fossil data can help to propose a sound hypothesis about the evolution of ladybird beetles. One of the taxonomically most complex groups, and without any phylogenetic hypothesis is the tribe Coccidulini, which in some studies are recovered as basal part of the Coccinellidae evolutionary tree, in others constitute a crown group. Coccidulini are distributed worldwide but their greatest diversity is in southern hemisphere including Neotropics, southern Africa and Australia. The largest and most widely distributed Coccidulini genus is *Rhyzobius*, which was taxonomically revised in 2010, however, the revision questioned its monophyly. The proposed project aims to reconstruct **molecular phylogeny** of the genus *Rhyzobius* with broad representation of other taxa of Coccidulini from the whole distribution range based on 5-8 molecular markers. The second part will be construction of the **morphological matrix**. The advantage of studying evolution of *Rhyzobius* is that we also have a **fossil record** which is preserved in Eocene ambers from Oise in France and Baltic amber. So the third source of the information will be investigation of fossil data. The final results will be obtained based on integration of all these sources of information to **propose a sound hypothesis about phylogeny which will enable the study evolutionary trends and biogeography of the genus *Rhyzobius* and in some extend the tribe Coccidulini**.

Requirements: Successful candidates should have a Master's degree in Biology. The candidate should have an experience in the molecular lab work, basic experience in bioinformatics including analysis of molecular data for phylogenetic purposes, and an experience with classic insect morphological analyses. Experience in working with beetles and interest in working with fossil specimens will be an advantage. The candidate

should have very good communication skills in English, perseverance, commitment, and the ability to work in a team.

Work description: Successful candidate will be performing laboratory work (i.e. DNA extractions, PCRs), process and prepare raw sequences for the phylogenetic analyses, performance of phylogenetic analyses in various programs (e.g. IQ-Tree, MrBayes), perform morphological revisions and descriptions at generic/species level, analyze fossil specimens from various amber sources and integrate them with morphological matrix of modern taxa, and use them for calibration of the molecular trees. The PhD student will be guided by members of our team (Wioletta Tomaszewska, Adam Ślipiński) and encouraged to develop her/his own ideas.

Application: The candidates are asked to **contact by email prof. Karol Szawaryn** (szawaryn@miiz.waw.pl) attaching the following documents (with the email subject "Application for a PhD position"):

1) a cover letter describing the motivation and research experience (max. 1 page);

2) CV including the list of publications, with the following statement provided at the end:

"I give my consent to the processing of personal data provided in my application documents by the Museum and Institute of Zoology PAS for the purpose of the recruitment process, pursuant to the Personal Data Protection Act of 10 May 2018 (Journal of Laws 2018, item 1000) and in agreement with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation; L 119 from 04.05.2016)"

3) copy of the MSc certificate;

4) opinion or an email contact of at least one supervisor/researcher holding a PhD degree;

5) filled form to the BioPlanet Doctoral school, which can be downloaded here: https://szkoladoktorska-bioplanet.pl/en/downloadable-forms/

The deadline for submitting the application is **31.01.2023**.

The candidates will be assessed based on the information in the submitted documents. Recruitment is carried out in accordance with the Regulations on awarding funding for research tasks funded by the National Science Centre as regards research projects, set out in the Annex to NCN Council Resolution No 90/2019 of 12 September 2019.

1) In the first step documents sent by the Applicants will be assessed by the panel.

2) Candidates that passed the first assessment will be contacted by e-mail to define a date for an online interview.

3) Successful candidate will conduct her/his studies in the BioPlanet Doctoral School https://szkoladoktorska-bioplanet.pl/en/home/.

Results will be announced 16.02.2023.

Ideally position will start in **late February/March 2023** (negotiable).