



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

FAKULTÄT FÜR BIOLOGIE
SYSTEMATIK, BIODIVERSITÄT UND EVOLUTION DER PFLANZEN



The Prinzessin Therese von Bayern Chair of Systematics, Biodiversity & Evolution of Plants at the Ludwig Maximilian University of Munich led by Prof. Gudrun Kadereit is offering a PhD position in the framework of the DFG-SPP1991 TaxonOMICS, supervised by Dr. Anze Zerdoner Calasan

PhD position

TVL-E13, 65% – for 3 years; open from April 1st 2023

From humid tropics into the arid zones: phylogenomics of *Amaranthaceae sensu stricto* (Caryophyllales)

The Amaranthaceae/Chenopodiaceae alliance comprises two morphologically and physiologically variable clades that arose through ancient, rapid diversification. Although Amaranthaceae and Chenopodiaceae are now recognized as a single plant family (Amaranthaceae s.l.), there is a stark contrast between these two taxa. Amaranthaceae s.s. has its highest species diversity in the tropics and subtropics, underwent at least three polyploidization events, and has markedly fewer C₄ species than Chenopodiaceae s.s. In contrast, Chenopodiaceae s.s. is rich in C₄ species that radiated rapidly in semi-arid, arid and saline habitats worldwide, and did not undergo any significant polyploidization events. The evolutionary history of Chenopodiaceae s.s. has been thoroughly investigated in recent years, but evolutionary studies in Amaranthaceae s.s. are less complete. This uneven situation precludes comparative studies of these two major taxa within Amaranthaceae s.l. that could yield key insights into the evolution of their clear physiological and ecological differentiation.

The successful applicant will perform a phylogenomic study using a target enrichment sequencing approach with a custom bait set developed in the Kadereit lab, and apply it on a representative sample of Amaranthaceae s.s. taxa. The aims of this project are manifold, and include:

- a) placing the evolutionary history of Amaranthaceae s.s. into time and space;
- b) reconstructing tropical-xeric biome transitions and any associated morphological and/or physiological characters, and
- c) comparing the evolutionary history of Amaranthaceae s.s. with that of former Chenopodiaceae, especially with respect to C₄ photosynthesis evolution.

We are looking for a candidate interested in flowering plant systematics, taxonomy, evolution, diversification, adaptation and/or biogeography with a Master of Science degree and a background in botany, systematics, molecular phylogenetics and/or evolution. Some experience with bioinformatics analysis of sequence data, analyses of trait evolution and/or historical biogeography reconstructions as well as good command of the English language are required.

The workplace is the Chair of Systematics, Biodiversity & Evolution of Plants at the Ludwig Maximilian University of Munich (Menzinger Straße 67, 80638 Munich, Bavaria, Germany; <https://www.en.sysbot.bio.lmu.de/index.html>), which is closely associated with the Botanical Garden Munich – Nymphenburg and the Herbaria M and MSB.

Please submit the following paperwork (in English):

- Short cover letter explaining your motivation
- CV (including the names of one or two references and a publication list)
- Certificate of completion and degree certificate (if not available yet, please state that in your cover letter)

The submission deadline is December 15th 2022.

Please submit your application by email (in one PDF, max. 5MB) to Dr. Anze Zerdoner Calasan (A.Zerdoner@lmu.de).

The Ludwig Maximilian University Munich is an equal opportunities employer and particularly encourages applications from women who are under-represented in the University at this level/in this discipline. Additionally, handicapped applicants will be preferred if equally qualified.