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The role of pollinators in the floral diversification of the South American genus *Salpichroa* (Solanaceae)

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The main goal of my doctoral project is to evaluate the role that different pollinator groups (e.g. bees, hummingbirds, moths) may have had in the evolution of the remarkable variation in flower traits (coloration, morphology, size, chemical composition of fragrance and amount of nectar) exhibited by *Salpichroa* species. This genus of Solanaceae actually comprises 21 species of climbing shrubs with pendant flowers, including the unspecific genus *Nectouxia*. Most of them grow in the tropical Andes of South America, from Venezuela to northwestern Argentina, except for *S. organifolia* which has a worldwide distribution and *Nectouxia formosa* which is endemic to Mexico and southern United States. To determine if changes in flower traits are associated with shifts in pollination mode, I needed to reconstruct the history of both, flower traits and pollinators in a molecular phylogeny of the genus.

To this end, during the last three years I made several field trips to Peru, Bolivia and northern Argentina to gather plant samples and to study the pollination biology of as many *Salpichroa* species as was possible.

The IAPT Research Plant Program in Plant Systematic 2016 provided financial support to carry out the molecular studies of 21 *Salpichroa* species, *Nectouxia formosa* and two outgroups (*Physalis viscosa* and *Solanum endoadenium*). I amplified two plastid and three nuclear markers, and obtained a consensus tree from Bayesian analysis of the concatenated DNA (Ibañez *et al.* in preparation). A small part of the grant was also used to pay a field trip in Mexico to collect samples and to study the pollination biology of *Nectouxia formosa*, (round-trip air ticket Córdoba (Argentina) – Mexico City (Mexico) was financed with a grant from Red de Macrouiversidades de Latinoamérica y el Caribe).

Preliminary results of this work were presented in two international congresses: 1) XX Congreso Mexicano de Botánica (4-9 September 2016, Mexico City, Mexico) and 2) Congress of the European Society for Evolutionary Biology (20-25 August 2017, Groningen, the Netherlands).



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Financial report

The IAPT Research Grant was mainly used to pay for DNA sequencing costs associated to undertake the phylogenetic reconstruction of the genus *Salpichroa* (Fam. Solanaceae).

I sampled 21 species of *Salpichroa* (including 2-3 accessions from different populations in some species to clarify its circumscription), *Nectouxia formosa* and two outgroup species. Thus, a total of 30 DNA samples were amplified using five different markers (10 reactions per sample– forward and reverse) = 300 reactions x USD 3 (unitary sequencing cost at UNAM facilities, cost partially waived to UNAM staff) made a total of USD 900. Associated DNA extraction costs were paid by Dr. Gerardo Salazar.

The remaining USD 100 were spent in different supplies needed to undertake fieldwork in Mexico to collect samples of *Nectouxia formosa*: fuel (Mexico City-Cuernavaca-Mexico City), batteries for portable air pumps used to collect floral volatile compounds, and oven bags necessary to enclose the flowers and concentrate the volatile compounds.

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Ana C. Ibañez

A handwritten signature in black ink, appearing to read "Andrea Cocucci".

Dr. Andrea A. Cocucci