**Lichens as building blocks for Lepidoptera’s housing: A highly selective and widespread interaction**

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Interactions between invertebrates and lichens are widespread. Lichens usually participate as food, shelter, background for mimicry, or as a custom-made camouflage for animals to wear. This last case is particularly intriguing and has evolved independently in several cases. The invertebrate’s behavior of attaching minute pieces of lichens onto its body makes identifying the lichens extremely difficult, which strongly limits our understanding of those interactions. During a study of lichens from tropical dry forests in Mexico, we discovered caterpillars of a moth species of the family Psychidae living inside mobile bag-like domiciles made from silk and completely covered with small pieces of lichens. Using molecular techniques, we identified the lichens used as construction material for the caterpillar bags and analyzed the caterpillar selectivity for particular species of lichens. We selected 13 caterpillar bags in good condition and recovered the ITS genetic marker for every piece of lichen present that was visually different. We obtained 47 lichen sequences and compared them against a newly generated ITS database from lichens of the study area. Of the c. 300 lichen species in the area, only eight of them were used by the caterpillars. We found a strong selection for species of the genus *Dirinaria* containing the lichen product sekikaic acid, even though they represent a small fraction of the lichens present in the study area. Our results suggest that the caterpillars select species of lichens at a higher rate than what is expected by chance, based on their local abundances. The methods used here provide an accessible way to study these widespread interactions, which hopefully will help to increase our understanding of the ecological roles that lichens play in tropical ecosystems.