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Geographic variation in flower color: spectral composition versus perception of pollinators

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Poster

Geographic variation of flower color can be the result of selective processes mediated by pollinators. Changes in flower color can steer visual attention of pollinators in different ways, thus influencing enhancing plants pollination success. Despite this is a widespread belief in pollination biology, there is no study that analyse at a geographical scale both, the spectral patterns of the light reflected by flowers across the entire wavelength range, and the colour space patterns obtained from pollinators perception of the reflected colours (adaptive component). Here we compare geographical variation structure of reflected flower color versus flower color perceived by pollinators, in 23 populations of the three species of genus *Monttea* (*Plantaginaceae*). There was substantial variation in the coloration of flowers between and within species considering both floral color components. However, for each flower segment measured (petal, floral tube and elaiophore), each color component showed different variation patterns. On one hand, at intraspecific level, coefficients of variation showed that the adaptive component is less variable at geographical scale than the spectral patterns obtained from flowers. On the other hand, nested analyses of variance showed mainly interspecific differences through the perception of pollinators. Moreover, multivariate analyses showed that pollinators could distinguish among species, whereas there is an important overlap in the spectra of flowers. Results showed differences in floral color patterns considering the spectral analysis versus that one perceived by the pollinators, suggesting different ecological and evolutionary processes underlying the observed variation of each group of data sets: the adaptive component of color would be primarily associated with pollinators assemblage which seems to be species-specific, suggesting an isolation mediated by pollinators among *Monttea* species, while the spectral variation of color, would be associated with other factors, like climatic and/or neutral processes.