Abstract

Human aesthetic responses to plants and flowers have long been an unexplored topic in people-plant interactions research. Theories focusing on aesthetic responses to plants and studies testing the effects of plants on human well-being have usually used general terms such as vegetation, greenery, or houseplants, thus ignoring the immense diversity of individual plant shapes and colors. We argue that specific features of different plant species play a key role in eliciting human aesthetic responses and possibly also influence the strength of their effects on human well-being. We decided to identify some flower features that might influence the aesthetic response and to test their relevance empirically. The choice of flower features was derived from evolutionary theoretical frameworks that discuss the origin of human aesthetic responses to flowers (Habitat selection theory), shapes (Information processing theory), and colors (Ecological valence theory).

In the first study, we asked more than 2,000 participants to rate the beauty of 52 Czech wildflowers in photographs. Our results showed a strong agreement between raters. The prototypicality of flowers had a positive effect on the rating of their beauty. At the same time, the ratings were strongly negatively correlated with flower complexity. Floral symmetry was also important. Bilaterally symmetrical flowers were considered very complex and not prototypical at all and received low ratings for beauty. We saw the opposite in radially symmetrical flowers. Colors played a less important role than shape in the rating of flower beauty, with blue being the best and yellow the worst rated.

In the second study, we focused on the premises of the influential, yet never empirically tested theory of Habitat selection. This theory postulates that in human history, flowers played a role as signals of an environment rich in resources and a promise of the future availability of food (fruits). Thus, the link between food and flowers is the source of human aesthetic responses to flowers. We followed the logic of the theory that claims that the stronger a signal is, the stronger the reaction to it. We thus compared flowers with a stronger signal of food – fruits. In three independent studies with more than 2,500 participants, we asked people to rate the flowering and fruiting stages of Czech and African edible plants. Our results showed that there were no differences in the aesthetic responses to flowers and fruits in the Czech sample but significantly stronger responses to flowers in the African sample. We conclude that the premises of the habitat selection theory were not supported by our data.

Our third study looked for intercultural similarities and differences in the aesthetic responses to flowers. We compared 150 Czech and Kenyan individuals who ranked printed photographs of 40 flowers from the most to the least liked. We subsequently correlated the mean ranks of each flower stimulus between the Czech and Kenyan samples. We found a very high positive correlation between Czech and Kenyans and only minor differences in the pattern of their rankings. Our data support the idea that aesthetic responses to flowers might be shared by humans as a species. However, our study was too limited to allow us to draw any generalizations.

The last study aimed to replicate the results of our first study and to explore whether aesthetic responses to flowers remain stable over time as well as across different stimuli and different raters. We also wanted to assess the validity of photographs as stimuli, by comparing the ratings of real flowers, their standardized photographs, and edited images from the internet. We showed in three consecutive experiments with 300 participants that the ratings of flower beauty highly correlate across different stimuli types, and therefore photographs and edited internet images can be used as substitutes for real flowers. Otherwise, the results were in line with our first study. We also

successfully employed a novel method for the assessment of the effect of color on the overall ratings when controlling for shape – a consecutive rating under monochromatic (red) and polychromatic (yellow) light.

The outcomes of our studies will hopefully be helpful for workers in the flower business, specialists involved in nature conservation and education, and researchers interested in human cognition.