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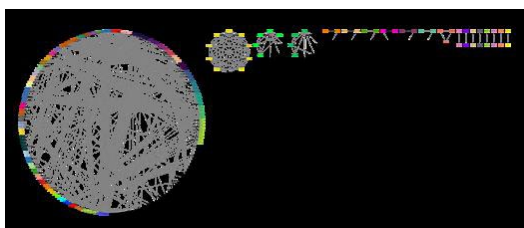
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## Adaptive microbial interactions in hummingbirds: A study of ramosomyia violiceps gut bacteria across contrasting environments

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This study examines the adaptation of the gut microbiota in the hummingbird *Ramosomyia violiceps* across three contrasting environments in Jalisco, Mexico: urban, agricultural, and natural. In light of the pivotal role of the microbiota in maintaining host homeostasis and regulating physiological functions, we investigate potential bacterial interactions based on differences at the Amplicon Sequence Variant level. By employing co-occurrence networks and metagenomic functional predictions, we are able to discern the pivotal interactions among the gut bacteria of disparate individuals. The hummingbird, with its high sensitivity to environmental changes, provides an invaluable model for the study of how the microbiota influences adaptation to diverse ecosystems. The results of this analysis provide a comprehensive view of how alterations in microbial composition can function as a mechanism of host adaptation, contributing to their success in various environments. An understanding of the microbiota's response to these environmental variations is essential for predicting its potential benefits for the host, which could have significant implications for species conservation and management in changing habitats. This approach provides a solid foundation for future research on microbial interactions and their role in ecological adaptation.



### Biography

Fernanda Villanueva Gudino is a biomedical engineer who graduated from Universidad de Guadalajara. She is currently pursuing a Master of Science in Bioengineering and Intelligent Computing. Her research interests in microbiota are driven by her fascination with their ecological significance, both within the host and in the external environment. She has chosen to focus her studies on the intricate bacterial interactions that occur in the gut microbiota of hummingbirds. Fernanda employs genetic sequencing techniques and bioinformatics analysis to elucidate the fundamental mechanisms underlying the microbiota that enable hummingbirds to flourish in diverse ecosystems, ranging from urban environments to natural habitats. Her research not only aims to expand the knowledge base regarding the microbiota in birds but also to provide insights that are pertinent to species conservation and ecology.

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