

The influence of social environment on trophallactic fluid

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Ants are eusocial insects that exhibit division of labor and each ant colony consists of queen(s), sterile workers and brood. Trophallaxis is reciprocal food and information sharing between individuals by fluid transfer. But does protein content of the fluid change according to social environment? If it is the case, how this fluid that altered by social environment would affect the ant growth in size since regular trophallactic fluid contains growth related proteins? Also, regarding to reproduction; previous studies showed that absence of queen affects workers' reproduction, but does absence of larvae trigger workers to start laying eggs? In order to answer all these questions, we choose *Camponotus floridanus* as our model organism, and we created an experimental set-up based on social conditions: QWL (Queen-Workers-Larvae), WL (Workers-Larvae) and W (Workers). Even though social isolation has changed the protein content of trophallactic fluid, analysis of trophallactic fluid samples that collected from ants who exposed to social isolation for 60 days showed that this altered fluid has no effect on ant growth in size. Additionally, absence of queen and/or larvae has not affected the development of workers' ovaries. This experiment showed how different social conditions influence the ants' physiology.

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