Suárez, Javier
The holobiont/hologenome as a level of selection: an approach to the evolution of multi-species systems. (Spanish. English summary) Zbl 1478.92140
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Summary: The units or levels of selection debate concerns the question of what kind of biological systems are stable enough that part of their evolution is a result of the process of natural selection acting at their level. Traditionally, the debate has concerned at least two different, though related, questions: the question of the level at which interaction with the environment occurs (which entity acts as an interactor), and the question of the level at which reproduction occurs (which entity acts as a replicator or reproducer). In recent years, biologists and philosophers have discussed a new aspect of this debate, namely the possibility that certain multi-species consortia formed by a host and its microbiome (holobionts/hologenomes) may act as a unit of selection. This thesis, however, has not been without criticism, as it is doubtful that such consortia could meet the conditions required to achieve the degree of stability that would allow them to experience natural selection. The purpose of this paper is to systematically examine such criticisms and to defend the thesis that the holobiont/hologenome can act as a genuine level of selection both in the form of an interactor and in the form of a reproducer. To do so, it will be argued that the microbiome should be characterized in functional rather than taxonomic terms.

MSC:
92D15 Problems related to evolution

Keywords:
units/levels of selection; natural selection; interactor; reproducer; hologenome; microbiota; evolutionary theory

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References:


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