

MOLECULAR PHYLOGENY OF TERRESTRIAL ISOPODS

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Terrestrial isopods are commonly referred to as pill bugs or woodlice, and inhabit both natural and human-altered landscapes. Isopods contribute to the flow of energy and nutrients in ecosystems, and are a bio-indicator species that can reflect varying changes in habitat quality. Terrestrial Isopods have been studied extensively in Europe, while in North America they have been studied only sparingly. Many of the species bear the names of European forms.

Data relating to the evolution of terrestrial isopods has been mainly based on morphology alone, which can correlate unrelated groups in the same taxonomic group. Currently sequencing 12s and 16s genes of wild caught terrestrial isopods is the focus of the project, as 12s and 16s are ideal choices for the construction of phylogeny. The 12s and 16s rRNA genes are sections of DNA that code for rRNA, and this rRNA makes up part of the ribosome. Due to higher substitution rates and lack of recombination, coalescent times are short, meaning species become apparently evolutionarily distinct more quickly than with nuclear genes. Also 12s and 16s are conserved because they are functionally constrained. This permits the use of primer sites identified for other crustaceans to amplify all the isopods, and ensures the amplification of true copies of 12s and 16s genes.

Once DNA is extracted from whole wild caught samples it is amplified by way of PCR and then sequenced. After sequencing is performed all data is compiled into an alignment using Lasergene software. This alignment is used to construct the phylogenetic trees with the use of PAUP software. Currently the data generated reveals a very strong monophyletic relationship for the genera *Armadillidium*, *Oniscus*, and *Porcellio*. Additionally according to the data compiled using the 16s gene supports a strong monophyletic relationship for the genus *Trachelipus*, this is also supported by the 12s data even more strongly.