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Title:	Fate of chitinous organisms in the geosphere
Authors:	Gupta, Neal S. (/jspui/browse?type=author&value=Gupta%2C+Neal+S.)
Issue Date:	2011
Publisher:	Springer
Citation:	Topics in Geobiology 34 133-152.
Abstract:	<p>Organic tissues such as cuticles may survive as organic remains and account for the fossil record of a number of important groups such as graptolites, chelicerates, insects, chitinozoans, ammonite beaks and fish scales. Fossilized cuticles were assumed to be composed of chitin protein complex similar to the living relatives, however, analysis of fossils using a range of mass spectrometric and spectroscopic methods have shown that preserved cuticles include significant amounts of aliphatic hydrocarbon component at times with an aromatic component that is very different to the composition of the cuticle of the living arthropod. Analysis of successively older fossil material has revealed that this transformation to an aliphatic composition is gradual and perhaps time dependant. Taphonomic incubation experiments demonstrate that lipids such as fatty acids are incorporated into the decaying chitin protein exoskeleton as early as a few weeks contributing to the aliphatic component. This is supported by chemolytic analysis of fossils that reveal presence of fatty acyl moieties in the macromolecule. Thus, the aliphatic composition in the fossils is generated in-situ and not from migration from an external source. Many kerogens are similarly aliphatic and serve as a source for petroleum during thermal maturation. In such sedimentary organic matter where the contributing organism does not have a resistant aliphatic biopolymer, in situ lipid incorporation is likely an important mechanism for presence of the aliphatic component in the fossil organic matter</p>
Description:	Only IISERM authors are available in the record.
URI:	http://link.springer.com/chapter/10.1007%2F978-90-481-9684-5_7 (http://link.springer.com/chapter/10.1007%2F978-90-481-9684-5_7)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

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