Title:	Identification and characterization of chitin in organisms
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Issue Date:	2011
Publisher:	Springer
Citation:	Topics in Geobiology 34, 117-132
Abstract:	Model compound chitin and invertebrate cuticles were analysed using pyrolysis-gas chromatography-mass spectrometry, 13 C NMR and C-, N-, The part-I of this paper attempts to evaluate the coral reef research in india using bibliometric tools for the period 1900-2000.The data has been extracted from “Bibliography on Indian coral reefs”. It highlights research productivity by subjects,domains,institutions(research and academic) etc. the study examines authorship pattern,productivity on individual scientists and also identified the various countries participation. It analyzes the forms of communication, journals productivity and identified the criteria for selection of the core journals for library. Suggested to create a database on coral reefs and to develop marine science at national level that would facilitate easy use of all categories of people. and O-Xray Absorption Near Edge Structure (XANES) spectral imaging using Scanning Transmission X-ray Microscopy (STXM) to detect spectra that are characteristic of chitin. Acetylpyridones, acetamidofuran, 3-acetamido-5-methylfuran and 3-acetamido-(2 and 4)-pyrones appear to be characteristic pyrolysis products for chitin. Pyrolysis products with ions of m/z 70, 154, 168, 194 likely derive from diketopiperazine structures and provide potential markers for proteins and peptides in which proline, alanine, valine, arginine and glycine are the dominant amino acids. The 13C NMR spectra of chitin reveals that amidyl methyl group resonates at 23 ppm, amidyl linked glyocosyl carbon resonates at 56 ppm, glucosyl secondary alcohols resonate between 62 and 84 ppm, and glycosidic carbon absorption is evident at ~105 ppm. The presence of protein in the arthropod cuticles is evident by resonance intensity associated with sp2 bonded carbon associated in unsaturated amino acids (e.g. phenyl alanine, tyrosine, and histidine) occurring at 116, 129, and 137 ppm. Additionally, the protein back bone methine carbon atoms are indicated by resonance intensity at 43 ppm. Additional broad resonance intensity in the 20–30 ppm range is derived both from aliphatic aminoacids (e.g. valine and leucine) as well as the fatty acids associated with the waxy cuticulin layer of the cuticle. High energy resolution C-, N-, and O-XANES spectra provide further functional group level characterization of the biomacromolecular assemblages at spatial scales on the order of 100’s of nm. Combining the power of Solid state 13C NMR, pyrolysis with the micro-analytical capabilities of C-, N-, and O-XANES yields a formidable analytical approach towards detecting and quantitating the presence of chitin in complex biomacromolecular assemblages.
Description:	Only IISERM authors are available in the record.
URI:	http://link.springer.com/chapter/10.1007%2F978-90-481-9684-5_6?LI=true (http://link.springer.com/chapter/10.1007%2F978-90-481-9684-5_6?LI=true)
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