NEW INSIGHTS INTO THE COMPOSITION OF WAX-LIKE MATERIALS IN CHONDRITES.

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Carbonaceous chondrites (CCs) record unique information on the composition of the Solar nebula and processes occurring during the Early Solar System. They contain a few percents of organic compounds, that are usually described as Soluble Organic Matter (SOM), soluble in common organic solvents, and Insoluble Organic Matter (IOM).

SOM is usually extracted by various polar and apolar solvents, and has been analyzed by a broad variety of techniques along the last 40 years [1]. Heavy alkanes, described as paraffin wax-like compounds [2], have been identified in meteorites since the XIXth century, but their compositions, structures and isotopic compositions are hardly understood so far. Their terrestrial vs. extraterrestrial origin has also been highly debated and is still an open issue [3].

Our study aims to extract wax-like compounds from a series of CCs with a well constrained post-accretional histories, in order to perform a combined characterization by Infrared, Raman and NMR spectroscopies, and Secondary Ion Mass Spectrometry. Wax-like compounds were isolated either by solvent extraction (CH_2Cl_2) or by mild sublimation at 60 °C under primary vacuum within an environmental cell. Mid-Infrared spectra [2,5-25 µm or 4000-400 cm^{-1}] were recorded on diamond and KBr windows.

Our experiments show that wax-like compounds are present in both thermally metamorphosed and unmetamorphosed chondrites. They present varying CH_2/CH_3 branching ratios, which correlate with the thermal history of the considered chondrite, and possibly on the extraction process. Interestingly, the wax-like compounds contain heteroatoms as O (carbonyl) and possibly N (amino groups). We will present in details these new results, and discuss their origin in terms of terrestrial contamination, parent-body processing and protosolar disk heritage.

References: [1] Gilmour I. 2003. *Structural and Isotopic Analysis of Organic Matter in Carbonaceous Chondrites* in *Treatise on Geochemistry* eds. Holland H. D. and Turekian K. K. [2] Vdovykin G. P. 1967. *Carbonaceous Matter in Meteorites (Organic Compounds, Diamonds, Graphite)*, Nauka Press, Moscow (NASA Technical Translation TT F–582. 216. Washington, 1970, pp. 216-222.) [3] Kissin Y. V. 2003. *Geochimica and Cosmochimica. Acta* 67:1723-1735.