

익산 왕궁리 출토 고대 토양의 지표 물질인 Coprostanol 연구

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The Research on Coprostanol as an Indicator of Faecal Material from Wanggung-ri, Iksan city

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Coprostanol(5β -cholestan- 3β -ol) is a metabolic product of cholesterol, formed by microbial action in the mammalian gut. The chemical compound is the major sterol in human and has been routinely studied as a marker of sewage pollution in marine and lacustrine sediments. This has led to the search for coprostanol as indicator in archaeological soils, in order to detect the presence of faecal material.

In this study, 5 kinds of ancient soils excavated at Wanggung-ri, Iksan city, were used to assess the possibility of using coprostanol as indicators of ancient human activity in archaeological areas. Lipids were extracted by ultrasonication of soil samples. The extracts were analysed by gas chromatograph/mass spectrometry detector(GC/MSD), using selected ion monitoring(SIM) method to detect and quantify specific compounds. The results from the lipid analyses showed coprostanol in the 5 sets of soil samples. Moreover, we accumulated some basic data for scientific analysis. So we obtained some characterizations of organic chemical source. The organic sources showed the content of high organic material as 7~22%, and strong acidic condition as pH 2~6.

This finding indicate that clear promise exists for the exploitation of coprostanol as indicator of ancient human activity in archaeological survey. The more scientific analysis of the soils will be showed to utility of the area ancient dietary life style, ancient environment.

Keywords: Coprostanol, Lipid, Faecal Material, Archaeological Soil, indicator, GC/MSD