

Coprostanol distribution in marine sediments off southwestern Taiwan.

韓柏欉

Jeng WL; Wang J and Han BC

Abstract

One of the major industries in southern Taiwan is pigfarming along the Kaoping River; some two million animals are being raised along the river banks. Excretions from pigs, treated and untreated, are discharged directly into the river and eventually carried to the sea. Twenty-four surface sediments and one sediment core off southwestern Taiwan were analyzed to determine quantitatively the extent of coprostanol addition and its distribution and to obtain the input of coprostanol over the past. Geographically, the percent coprostanol is highest around the river mouth, and decreases to about 1% at the shelf break and about 0% at a distance of approximately 40 nautical miles (74 km) from the river mouth. The progressive seaward decline of percent coprostanol from the river mouth can be attributed to [1] dilution of coprostanol by uncontaminated sediment and/or sediment containing relatively lower levels of coprostanol, [2] dilution of coprostanol by biogenic sterols, and [3] probably degradation of coprostanol. Further, the Kaoping Canyon sediments contain relatively high percent coprostanol; this can be attributed to [1] a more direct input of the river sediments because the canyon is well aligned with the river, [2] currents in the canyon being alternate upcanyon and downcanyon which tend to keep sediments in the canyon, and [3] the possible blocking effect of a topographic high in the canyon. A sediment core exhibits comparatively higher percent coprostanol in the top 15 cm, indicating an increased input of coprostanol over the past 20 years.