

BIOMARKERS FROM LATEX DRYING PLANTS IN SEDIMENTS OF THE SIAK RIVER, E SUMATRA, INDONESIA

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In Pekanbaru, the capital of Riau Province, E Sumatra, Indonesia, several latex drying facilities discharge drying liquor into the Siak River. Effluents from rubber and latex processing factories include wash water, small amounts of uncoagulated latex and also contain small quantities of dissolved organic compounds such as protein, carbohydrates and lipids. Since large amounts of acid are used in processing, the effluent is usually acidic and contains high proportions of suspended solids and nitrogen. This discharge hence represents a source of oxygen-consuming and eutrophicating compounds to the river system.

Bark from *Hevea brasiliensis*, the tree used for natural latex production in Sumatra, showed a characteristic composition of terpenoid alcohols and ketones including friedelin (friedelan-3-one) and two as yet unidentified tetraterpene alcohols (TTA) with m/z 500 and 510 for their molecular ion (TMS). Particulate matter, sampled directly at the wastewater discharge point of a latex processing factory, showed the same compounds with a comparable relative composition to be present. In the Siak River sediment sample, taken approximately 100 m downstream from the discharge point, the TTA with m/z 500 was missing while the compound with m/z 510 had its molecular mass increased by two units suggesting a loss of a double bond by oxidation.

The uncharacterised TTA's could not be found in any other of 40 plant sources from the Siak bank vegetation and hence appear to be unique to *Hevea brasiliensis* thus providing a biomarker for inputs from latex processing. This approach provides together with the results of the joint projects [1], comprehensive information for political and administrative bodies to assess the environmental situation in this area.

REFERENCE

[1] <http://www.zmt-bremen.de>