The tanning industry is a major source of pollution worldwide, particularly in developing countries. The major public concern over tanneries has traditionally been about odours and water pollution from untreated discharges. Important pollutants associated with the tanning industry include chlorides, tannins, chromium, sulphate and sulphides as well as trace organic chemicals and, increasingly, synthetic chemicals such as pesticides, dyes and finishing agents, as well as solvents. These substances are frequently toxic and persistent, and affect both human and environmental health.

The primary focus in this book was to identify the recently developed ecotoxicological analytical trends (rapid, simple and inexpensive) related to the tanning industry on terrestrial and aquatic systems. The resultant research data reported, incorporates both field related and laboratory based techniques to address underlying environmental problems in the tanning sector. The book also includes a chapter to explore the occupational hazards in a tannery environment caused by contaminated dust. It was important to note that an optical set-up involving microscopy and digital imaging techniques was initially used to determine dust particle numbers and size distributions as a preamble to ascertaining the dust toxicity levels. To determine the toxic nature of the dust (in addition to particle size), an ecotoxicological screening of the dust samples (using a solid and liquid assay involving the response of luminescence (lux)-based bacterial biosensor) was conducted and which was complemented by chemical analysis to identify possible causative toxic components. Moreover, a novel technique has been discussed in this book related to the tannery effluent and associated environmental samples. This included a section describing the dissection and manipulation of samples through sparging, treatment with activated charcoal, filtration and pH adjustment.

Finally, the book succeeds in meeting its three main specific objectives at the end: characterisation of effluents, sediments and riverine samples; assessment of ecotoxicity; bioremediation potential of primary contaminants and input of environmental risk assessment through development of a quantitative and qualitative risk assessment model. Indeed this book will provide a valuable academic and referral dimension in environmental management related to the tanning industry.

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Ecotoxicological Diagnosis in the Tanning Industry
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2010, XVI, 140 p., Hardcover