

عنوان مقاله:

Effect of Agricultural Inputs on the Water-soil Couple in Cocoa-growing Area in the Department of Soubré,
Southwestern of Côte d'Ivoire

محل انتشار:

مجله پیشرفت در تحقیقات بهداشت محیط, دوره 10, شماره 4 (سال: 1402)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Background: The cocoa crisis in the ۱۹۷۰s decade in Côte d'Ivoire was manifested by the proliferation of crops pests, reduced production and decreased rainfall. To cope with all these constraints, the producers adopted various strategies, including the use of agricultural inputs to improve the production. Thus, this study aimed to characterize the effects of these inputs on water-soil couple. Methods: First, ۱۲ soil and surface water samples were taken for analysis. Second, determination of trace metal content was done using an atomic absorption spectrophotometer (AAS). Also chemical elements were analyzed using a HACH DR ۶۰۰۰ spectrophotometer. Results: Soil concentrations of exchangeable base Ca^{2+} , K^+ and Mg^{2+} are low with average values of ۵.۷۱ cmol/kg, ۰.۳۵ and ۱.۶۶ cmol/kg, respectively. The soils of cocoa orchards are quite rich in assimilable phosphorus (P). The average phosphorus content is ۲۴.۳۱ cmol/kg with a minimum of ۳.۹۲ cmol/kg and a maximum of ۷۸.۴ cmol/kg. The study of surface water quality showed that the average values of biochemical oxygen demand for ۵ days (BOD_5) (۱۸.۶۴ mg/L) and chemical oxygen demand (COD) (۱۵.۴۹ mg/L) are lower than the respective standards of ۲۵ and ۱۲۵ mg/L of the world health organization (WHO) standard. These surface waters have average concentrations of ۰.۰۱۵ mg/L for cadmium (Cd), ۰.۰۴۲ mg/L for zinc (Zn) and ۰.۰۶۲ mg/L for manganese (Mn), below the respective standards of ۰.۰۰۳, ۳ and ۰.۴ mg/L. Conclusion: This study shows that surface waters are not yet very polluted by these inputs

کلمات کلیدی:

Pesticides, trace metal elements, cocoa farming, Côte d'Ivoire, vulnerability

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