

连云港市典型蔬菜基地土壤中重金属和有机氯污染调查与评价

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摘要:对连云港市3个典型蔬菜基地土壤中汞、铅等金属元素以及六六六、DDT和BaP等20种污染因子进行了调查,采用单因子污染指数、内梅罗污染指数及综合污染指数等相结合的方法进行了评价。结果表明,部分点位Pb和DDT等含量超标,蔬菜基地土壤环境质量处于尚清洁或污染状态,已不能满足食用农产品生产的需求。大部分点位重金属含量高于江苏和全国黄棕壤土壤环境自然背景值,其中Cd、Zn比背景值高近一倍,已经达到污染警戒水平,需查明Hg、Cd、Zn、有机氯等污染来源。土壤中有机质含量较低,达到很缺乏级别。

关键词:蔬菜基地; 重金属; 有机氯; 连云港

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Investigation and Assessment on Heavy Metals and Organochlorine Pesticides in Lianyungang Vegetable Bases

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Abstract: Soil samples collected from three typical vegetable bases in Lianyungang were analyzed to determine concentrations of 20 kinds of pollutants, such as heavy metals, Organochlorine Pesticides and benzo(a)pyrene. Single pollution index, Nemerow index and comprehensive pollution index for different pollutants were calculated. The results showed that pollution indexes of Pb and DDT were higher than standard concentration, leading to a 'polluted' level for the vegetable bases investigated, indicating that the quality of soil could not meet the demand for vegetables. Concentrations of heavy metal at most sites were higher than background values. Cd, Zn levels were nearly twice as high as the background values, leading to an 'alarming' level. Pollution sources of Hg, Cd, Zn and organic chlorine should be identified. Organic matter content of the soil were very low, belong to 'lacking' levels.

Key words: Vegetable base; Heavy metal; Organochlorine pesticide; Lianyungang

土壤环境质量对生物及人类健康均有着十分重要的影响^[1]。随着经济的发展,蔬菜基地的环境污染问题越来越突出,其中重金属和有机氯农药等污染已受到广泛关注,由于其难以降解,通过生长环境会对蔬菜质量产生影响,进而影响人类健康。重金属可在土壤中积累并通过食物链进入人体,严重者会诱发心血管、肾、神经和骨骼等器官病变^[2]。有机氯农药虽已禁止使用,但中国局部地区土壤中有机氯的残留量仍较高,不容忽视。为全面了解连云港市的主要蔬菜基地土壤环境质量,选择3个典型蔬菜基地,对铅、汞等金属以及六六六、DDT和BaP等污染因子进行调查,以了解其污染

程度,为无公害蔬菜基地建设和重金属、有机氯污染控制提供指导依据。

1 研究方法

1.1 基地概况

选取了连云港市主要的蔬菜基地位于东郊沿

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