

### (一) 計畫中文摘要

農業環境生態受到人類活動的影響甚鉅，煙草煙霧中的放射性問題在科學出版社中越來越受到關注，並且越來越多地受到醫學媒體的關注。煙草含有微量的 $^{210}\text{Pb}$ ， $^{210}\text{Po}$ 和 $^{226}\text{Ra}$ 同位素，這些同位素來自鈾和釷衰變系列，具有放射性和致癌性。由於這些放射性同位素，吸煙及其產品會增加內部攝入量和輻射劑量。通過吸煙吸入一些天然存在的放射性核素被認為是導致肺癌的重要原因之一。本研究將菸草植體處理後，進行放射性核種的檢測分析作業。本計畫的研究目標是根據台灣地區菸草品種之植體樣本(含莖、葉、根等)，與所對應之土壤，探討不同品種菸草、土壤樣本之 $^{232}\text{Th}$ 、 $^{226}\text{Ra}$ 和 $^{40}\text{K}$ 的關係，了解放射性 $^{232}\text{Th}$ 、 $^{226}\text{Ra}$ 和 $^{40}\text{K}$ 等元素在環境-植體間的流佈。

關鍵詞:放射性、菸草

### (二) 計畫英文摘要

The agricultural environment ecology is greatly affected by human activities. The radioactivity problem in tobacco smoke has received more and more attention in scientific publishing houses, and it is increasingly concerned by medical media. Tobacco contains trace amounts of  $^{210}\text{Pb}$ ,  $^{210}\text{Po}$  and radium-226 isotopes, which are derived from the uranium and thorium decay series and are radioactive and carcinogenic. Because of these radioisotopes, smoking and its products increase internal intake and radiation dose. Inhalation of some naturally occurring radionuclides by smoking is considered to be one of the important causes of lung cancer. This study focused on the development of qualitative and quantitative detection techniques for tobacco implants in the Canadian radioactive nucleus. After pre-processing tobacco plants, the radioactive nucleus was detected and analyzed. The research goal of this project is to explore  $^{232}\text{Th}$ ,  $^{226}\text{Ra}$  of different varieties of tobacco, soil samples according to the plant samples (including stems, leaves, roots, etc.) of tobacco varieties in Taiwan and the corresponding soil.

Key word: Radioactivity, Tobacco.