**十一、研究計畫中英文摘要：**請就本計畫要點作一概述，並依本計畫性質自訂關鍵詞。

（二）計畫英文摘要。（五百字以內）

The "poisonous milk power" incident demonstrated the importance of food hygiene. The research samples of our project are puffer fish species which might contain tetrodotoxin, ciguatoxin, and ostracitoxin/Pahutoxin. Abused or mistaked eating of these kinds of puffer fish will produce the poisoning of death. Therefore, it is more important than previous mentioned incident. This project will continuously research following the established gene fingerprint and DNA barcode systems from the previous program and deeply extend to study the following three directions: 1. Studies on the method of DNA extraction from the mixed meat with puffer fish and quantitative analysis by real time PCR. 2. Studies on the exogenous of tetrodotoxin-producing bacteria and analysis their genome fingerprint. 3. Studies on the method of high amount TTX extraction from TTX-producing bacteria with the optimum growth condition and the mechanism of genetic toxicity between TTX with nucleobase. The expectation of this project wish to com to the following achievements: 1. Wish to establish the optimum method for degraded DNA extraction of the mixed meats from commercial fish products based on the puffer fish. Quantitative analysis with these commercial products by using real time PCR method and detection limit will also be established in order to stop the adulteration and misused of puffer fish. These results will be the base for preventing food poisoning and improve the government to ban or draft relevant fishery's policies for the purpose of food control. 2. Understand the exogenous of regional tetrodotoxin-producing bacteria of Taiwan and establish the gene fingerprints of these TTX-producing bacteria. The homogeneity and heterogeneity of genomes from the TTX-producing bacteria and other bacteria are the more important data and even more can offer as the basic reference for the domestic and international relevant further research on academy. 3. Establish the method of high amount TTX extraction from TTX-producing bacteria with the optimum growth condition and understand the mechanism of genetic toxicity between TTX with nucleobase. Moreover, these data can offer the further medical research to develop narcotic drug, analgesic, and the antibody vaccine of TTX.

Keyword: Puffer fish, DNA barcode, real time quantitative PCR, TTX-producing bacteria, gene fingerprint, genetic toxicity