

**Revised cancer risk assessment of inorganic arsenic upon
consumption of tilapia (*Oreochromis mossambicus*) from
blackfoot disease hyperendemic areas.**

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摘要

Abstract

To evaluate the risk for blackfoot disease (BFD, a peripheral vascular disease associated with arsenic (As) exposure) of Taiwanese people consuming tilapia, 71 tilapia (*O. mossambicus*) samples collected from 11 aquaculture ponds in Yichu, Hsuehchia, Putai, and Peimen towns (areas endemic for BFD) in Taiwan between December 2001 and April 2002 were examined for As concentration using electro-thermal atomic absorption spectrometry, hydride generation, and HPLC. The total As concentration of tilapia from the 4 towns ranged from 0.512 to 1.682 micro g/g (average, 0.847 micro g/g). The levels of As(III) and As(V) ranged from 0.017 to 0.047, and from 0.015 to 0.048 micro g/g dry weight, respectively. Inorganic As constituted 5.6-12.8%, with a geometric mean of 6.3%. The 95th percentile potential risk for cancer due to inorganic As (through the consumption of 10-70 g/day of tilapia harvested from BFD endemic towns) ranged from 3.54×10^{-6} to 2.48×10^{-5} . The 95th percentile target cancer risk value, estimated using total inorganic As, exceeded 10^{-6} , indicating high potential risk. Results suggest that consumption of tilapia with high inorganic As content is a significant risk factor for BFD..