

Toxoplasma gondii in fresh vegetable samples collected from bazaars in Xining City, the Qinghai-Tibet Plateau, China: detection and genotyping

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INTRODUCTION. *Toxoplasma gondii* is a cosmopolitan protozoan parasite that causes toxoplasmosis – one of the most prevalent parasitic infections in humans. The disease is generally asymptomatic in immunocompetent individuals; however, it may take a severe course in immunodeficient patients and in immature fetuses and infants, if the mother suffered from primary infection during pregnancy. One of the important routes of infection in humans is ingestion of oocysts excreted by infected felids to the environment (water, soil, air, raw fruit and vegetables) (Cook et al. 2000; Dubey et al. 1996; Fayer et al. 2004, Lass et al., 2009, 12, 17). In China, the estimated average prevalence rate of *T. gondii* infection was 7–12.3%, depending on the region (Xiao et al. 2010) and shows increasing trend. There are very limited data on the detection of this parasite in the environment, and no studies related to the presence of *T. gondii* and its genotypes in fresh vegetables intended for consumption in China.

AIM OF THE STUDY. The main aim of this study was to investigate fresh vegetables originated from open market localized in the Xining City, the Qinghai-Tibet Plateau (QTP), China for their contamination with *Toxoplasma gondii*.

MATERIAL AND METHODS. A total of 279 fresh vegetable samples were collected from open markets localized in the Xining City, a capital of Qinghai province, western part of People's Republic of China, including: lettuce, spinach, cabbage pakchoi, Chinese cabbage, rape, Asparagus, endive, chives, Cabbage, red cabbage. In order to recover and concentrate of *T. gondii* oocysts from vegetable samples combination of flocculation and flotation methods was used. Next, for specific detection of *Toxoplasma gondii* DNA real-time PCR assay based on *T. gondii* B1 gene (Arkush et al. 2003) was used. Positive samples were sequenced and genotyped using multilocus PCR-RFLP assay with selected genetic markers: SAG1, SAG2, SAG3, BTUB, GRA6, C22-8, c29-2, L358, PK1 and Apico (Su et al., 2010, 2006; Ferreira et al. 2011).

RESULTS. *T. gondii* DNA was found in 8 (2.8%) samples. Multilocus genotyping showed presence of *T. gondii* type I. The results of this study confirmed that *T. gondii* is present in various vegetables available for consumers in the Qinghai province in China; this contamination may be a potential source of toxoplasmosis in humans in the investigated area.

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