Detection of Gastric *Helicobacter* Species from Broiler Chickens by Rapid Urease Test and Brush Cytology

Gilda M. Mahinay1 and Karma Nenalyn M. Goetz
College of Veterinary Medicine, University of Eastern Philippines
University Town, Catarman, Northern Samar

*Corresponding author: gmahinay2004@yahoo.com

Abstract

Laboratory diagnosis of Helicobacter species is problematic. A cross-sectional study was conducted to detect Helicobacter species in proventriculus of chickens sold at different meat stalls in Catarman, Northern Samar and assess the degree of agreement between rapid urease test (RUT) and brush cytology. A total of 30 dressed chickens were randomly collected to obtain the proventriculus. The gastric mucosa was subjected to both RUT and brush cytology. Positive percent agreement to the two tests was 48% while the negative percent agreement was 100%. No visible lesions were observed in the gastric mucosa. Results suggest that the RUT is a more appropriate screening test for gastric helicobacters. The presence of gastric Helicobacter species could be a potential hazard to public health.

Key words: *Brush cytology, chickens; Helicobacter spp., proventriculus, Philippines; rapid urease test*

Introduction

The *Helicobacter* species is a group of gram-negative, slightly curved, spiral, slender rods and microaerophilic bacteria that belong to Order Campylobacterales, Family Helicobacteraceae, many of which cause disease in humans (Fox, 2002; Goldstein, 2003). It is found in the gastrointestinal and biliary tracts of mammals and birds (Fox and Lee, 1997). Gastric *Helicobacter* species are widely distributed in mammals and in many cases, cause an inflammatory response similar to that seen with *Helicobacter pylori* in humans. *H. pylori* is a urease-producing, gastric pathogen implicated in a wide spectrum of chronic gastrointestinal orders in humans such as gastric and peptic ulcers, chronic gastritis, duodenitis, gastric mucosa-associated lymphoid tissue (MALT) lymphoma, and gastric carcinoma (Boyanova, 2011; Ramis *et al.*, 2012). It is the second most common cause of cancer morbidity and mortality worldwide, and gastric non-Hodgkins lymphoma (Personnet *et al.*, 1994; Zucca *et al.*, 1998). Gastric *Helicobacter* species from food animals, including *H. pylori* can be transmitted to humans to cause infections.

Diagnosis of *Helicobacter* species using routine methods can be difficult. It includes rapid urease test (RUT), brush cytology, histopathology, and polymerase chain reaction (PCR) assay. RUT is highly specific