

ISOLATION AND CHARACTERIZATION OF VARIOUS
 CAMPYLOBACTER SPECIES FROM SWINE INTESTINAL TISSUES
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Intestinal tissues of swine with and without lesions of proliferative enteritis (PE) were cultured for the presence of *Campylobacter* spp. Lower small intestine (ileum) of 48 pigs was frozen (-70C) then thawed, opened and gently washed with tryptic soy broth. The mucosal surface was scraped and 1 g of epithelial surface scrapings were ground until emulsified. The emulsion was passed through 0.8 μ and 0.65 μ membrane filters. Original emulsion, 0.8 μ filtrate and 0.65 μ filtrate were inoculated onto Mueller Hinton agar (MH) with 5% sheep blood and with or without 2.5 μ g/ml trimethylprim and 47.5 μ g/ml sulfamethozayole. Plates were incubated at 37C in 6% O₂, 7% CO₂, 7% H₂ and 80% N₂. Plates were examined at 48 hour intervals for 144 hours. Organisms were characterized using the following tests: fermentation or oxidation of dextrose, gelatin liquefaction, urease, oxidase, presence of flagella, catalase, H₂S production using TSI, nitrate and nitrite reduction, growth in 1.5%, 1.75%, 2.0%, 2.5% and 3.0% NaCl, growth in 1.0% glycine, growth in 0.4 mg/ml triphenyltetrazolium chloride, growth at 25C, 30.5C, 37C and 48C, sensitivity to 30 μ g nalidixic acid and 30 μ g cephalothin and sodium hippurate hydrolysis.

Organisms were considered *Campylobacter* spp. if they were gram negative, microaerophilic curved rods, 0.2 μ m to 0.5 μ m wide and 1.2 μ m to 2.5 μ m in length, showed darting motility, did not utilize dextrose by oxidation or fermentation, did not hydrolyze gelatin or urea, were oxidase positive and possessed a single polar or bi-polar flagellum.

Four species of *Campylobacter* were found. A previously undescribed organism *C. hyointestinalis* (CHI) was found in 19 specimens of swine with PE. Colonies were yellow, circular, convex, slightly mucoid, about 1-2 mm in diameter and did not swarm. Organisms were long, loosely spiraled, 0.35 to 0.55 μ wide, with some shortbacillary forms. EM revealed a single polar flagellum.

C. sputorum ss *mucosalis* (CSM) was isolated from 18 specimens. Colonies were <1.5 mm yellow, circular, convex and slightly hemolytic. When picked from agar, they tended to come off in clumps. The organism was short, spindle-shaped about 0.3 μ to 0.4 μ wide with a single polar flagellum.

From 10 specimens, *C. jejuni* or *C. coli* were found. CHI and CSM together were found in pigs with PE. CHI alone was found in seven pigs with PE and in one pig without PE. CSM was found in five pigs with PE and in two without PE. *C. jejuni/coli* (CJC) were found in two pigs with PE, and eight pigs without PE. No *Campylobacters* were found in two pigs with PE and ten pigs without PE.

Important differential characteristics of CHI include: catalase positive, H₂S positive on TSI, no growth on 0.4 mg/ml triphenyltetrazolium, resistant to nalidixic acid and resistance to cephalothin. CSM was catalase negative, H₂S positive on TSI, did not grow on 0.4 mg/ml triphenyltetrazolium, resistant to nalidixic acid and resistant to cephalothin. CJC was catalase positive, H₂S negative to TSI, grew on 0.4 mg/ml triphenyltetrazolium, was sensitive to nalidixic acid and resistant to cephalothin.

Conclusions: CHI is the most common *Campylobacter* found in pigs with PE. Its importance as a possible cause of PE should be considered.