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**A STUDY OF THERMOPHILIC CAMPYLOBACTER
IN CATTLE, SHEEP AND LABORATORY ANIMALS**

A Thesis presented in partial (70%) fulfilment
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ABSTRACT

A total of 1107 samples (rectal, intestinal and bile) from rats, mice, guinea pigs, rabbits and cats were examined for the presence of intestinal thermophilic campylobacter.

The investigation showed that 20.6% of the total of 503 laboratory animals examined were positive for Campylobacter jejuni. The prevalence rate was found to be highest amongst the cats (51.7%) with rats being the next in order (23.2%), whereas 4/52 (7.7%) of guinea pigs and a single rabbit (1%) were positive for C. jejuni. One of the four isolates recovered from guinea pigs was from bile. Campylobacter-like organisms were cultured from 5/50 (10%) of the mice, but these failed to grow on subsequent subculturing. By using bacterial restriction endonuclease DNA analysis (BRENDA) for their identification, a single type of C. jejuni was identified (pattern 25) from all isolates recovered from the rats, guinea pigs and a rabbit, whereas there were five different BRENDA patterns from cat isolates.

Sawdust was suggested as a likely vehicle through which the organism may have spread within the Unit and infected the rats. The spread to other species was thought to have been from the guinea pigs which were initially infected from contaminated hay or green feed.

The isolation of C. jejuni organisms having a multiplicity of BRENDA patterns from the cats, suggests that the cat organisms had been present in the cat colony from the time the colony was started or from the occasional bird which accidentally flew into the cat cages and was eaten.

A single isolate of C. laridis from a house fly was also isolated but there was no evidence of this organism in any of the laboratory animals.

Seasonal variations in the isolation of thermophilic Campylobacter species in dairy cows was also studied and showed that

there were 17/72 (23.6%), 33/106 (31.13%) and 11/95 (11.5%) positive for campylobacter during summer, autumn and winter respectively. The prevalence rate of Campylobacter species is highest in warmer months of the year.

The isolates recovered from dairy cows were also identified by the BRENDA technique and compared with those from sheep. Seventeen different BRENDA patterns were identified from 48 isolates from dairy cows and six from 27 isolates from sheep. Of the total of 21 different BRENDA patterns, only two were common to both animals suggesting cross infectivity between these two animals. Organisms having the same BRENDA pattern could also be isolated from dairy cows and sheep on more than one occasion establishing the stability of BRENDA patterns.

No similarities were seen between the BRENDA patterns recovered from laboratory animal isolates and those of dairy cows and sheep.

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