

## COMPARISON OF FOUR MEDIA FOR THE SELECTION OF BIFIDOBACTERIA IN FECAL SAMPLES.

The selective enumeration of *Bifidobacterium* spp. is of great interest for the study of normal intestinal flora in animal species. Culture media used to study nutritional effects on gut microflora included Modified Columbia Agar (Beerens' medium) (Beerens, 1990), Bifidobacterium Iodoacetate Medium 25 (BIM-25) (Munoa and Pares, 1988); and BS I medium (Mitsuoka et al., 1965). Selectivity of Beerens' medium arises from its low pH and propionic acid content, whereas BIM-25 relies on the addition of antibiotics. A combination of antibiotics, low pH, propionic acid, and lithium chloride is used in the formulation of BS I medium. A study performed in NP Analytical Laboratories compared the performance of Beerens' medium, BIM-25, BS I using LAB M as a base (BS-LAB M), and BS I using Modified Columbia Agar as a base (BS-MCA) when used with fecal isolates and dog fecal samples. The selectivity of the culture media was tested using 21 strains belonging to the principal gut microflora including strains of *Bacteroides* spp., *Veillonella* sp., *Lactobacillus* spp., *Fusobacterium* sp., *Eubacterium* sp., *Clostridium* spp., *Prevotella* sp., and *Bifidobacterium* spp., as well as fecal samples collected from three German Shepherd dogs. The selectivity of Beerens' medium and BS-MCA was further tested by performing presumptive identification of isolates recovered from dog fecal samples. Medium BIM-25 was found to support the growth of both Gram positive and Gram negative bacteria. Beerens' medium was found to only support the growth of Gram positive bacteria but inhibited the growth several of the *Bifidobacterium* species. Growth of *B. fragilis* and *F. necrophorum* in addition to the bifidobacteria tested was observed on BS-LAB M medium. Growth of Gram negative bacteria was not observed when LAB M Agar was substituted by Columbia Agar Base (BS-MCA). Moreover, BS-MCA was found to support the growth of most of the bifidobacteria tested. Identification of 44 Gram positive isolates recovered from Beerens' medium indicated that 33% of the isolates recovered were presumptive *Bifidobacterium* spp. All other isolates were identified as presumptive *Lactobacillus* spp. In contrast, about 80 % (52/67) of the isolates recovered from BS-MCA were identified as presumptive *Bifidobacterium* spp. Other isolates were presumptive *Lactobacillus* spp. (about 15%) or other Gram positive rods (about 5%). Of the four media tested, BS-MCA was found to have the best selectivity while allowing the growth of most of the bifidobacteria tested. This medium may therefore be useful for the study of normal microflora in animal species.



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