

NOTE ON THE NON-LACTOSE FERMENTERS IN FRESH MILK.

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IN order to determine whether non-lactose fermenting bacilli are numerous in fresh milk, a series of experiments was made in the early part of this year on samples of fresh dairy milk, taken in Dumfriesshire, for routine bacteriological examination. The samples were brought to the laboratory with the least possible delay, and in no case did more than seven or eight hours elapse between the time of milking and the inoculation of plates. In the majority of instances, the interval was much shorter.

Technique.

(i) The raw milk was plated directly on a series of bile salt neutral red lactose plates—Primary Series.

(ii) Tubes of bile salt neutral red lactose broth were inoculated with 1 c.c. of milk, and plated on bile salt neutral red lactose agar after 48 hours incubation at 37° C.—Secondary Series.

In some cases the sediment from 20 c.c. milk, centrifuged in sterile tubes, was plated out, but in each case with negative results, lactose fermenting colonies only developing.

After incubation, all colourless colonies were subcultured into litmus lactose peptone water, and those which produced neither acid nor gas after three weeks were further studied.

Sixty-one samples of milk were examined, and, though a large number of colourless colonies were isolated, only seven samples (11·47%) proved to contain non-lactose fermenters. From these seven samples, eight organisms were obtained. These were put through the tests devised by Graham-Smith, Lewis and Moore Alexander¹, with the results shown in Table I.

¹ *Report of the Medical Officer to the Local Government Board, 1911-12.*

TABLE I.

Number	Glucose	Mannit	Dulcit	Saccha- rose	Salicin	Sorbit	Indol	Motility	Milk	Gelatine	Type
M 1	AG	AG	-	-	-	-	-	+	A then Alk.	-	Ha 10
M 2	-	-	-	-	-	-	+	-	-	-	A 3
M 3	-	-	-	-	-	-	-	-	-	-	A 1
M 4	AG	AG	-	-	-	-	+	+	A then Alk.	-	Ha 12
M 4 (a)	AG	AG	-	-	-	-	-	+	A then Alk.	-	Ha 10
M 5	-	-	-	-	-	-	-	+	-	-	A 2
M 6	A	-	-	-	-	-	-	-	AC	-	Ba 17
M 7	AG	AG	-	AG	AG	-	-	+	-	-	Hc 2

Thus of the seven positive samples, three contained organisms of Group A, three of Group H, and one of Group B.

In regard to the general bacteriological condition of these samples, lactose fermenters were absent from 1 c.c. in one case, present in 1 c.c. in two cases, in 0.1 c.c. in three cases, and in 0.001 c.c. in one case.

Although it is probable that a more satisfactory technique might show a higher percentage of positive cases, these results suggest that non-lactose fermenters do not occur in large numbers in fresh milk.