

MONOPHASIC NATURE OF SAL. ABORTUS-EQUI.

Sal. abortus-equi has been known as a monophasic type which is stable in both phase-1 (a) and phase-2 (e,n,x). An alternative phase is obtained by the antiserum selection for rare variations. The presence of a suppressed H_1 locus in phase-2 cell is demonstrated by transduction of H_1^a allele, as well as H_2^{enx} , to the other recipient (Lederberg and Edwards, 1953). Therefore, the strain has the genotype $H_1^a H_2^{enx}$, but H_2^{enx} is stabilized in both active- and inactive-states. An analysis of a factor which stabilizes H_2 state will be reported here.

A strain of Sal. abortus-equi, SW726, was used for the experiment. The strain is very slow motile in both phases. The motility is slower in phase-1 than in phase-2. Selection of a fast motile variant by NGA deep tube cultures has been unsuccessful.

For the transductional experiment, e,n,x-phase of SW726 was used as a donor and i-phase (phase-1) of diphasic Sal. typhimurium TM2 as a recipient. Transductional types were screened by NGA plates supplemented anti-i serum and anti e,n,x-serum at a dilution of 1/1000. Among 65 transductions obtained, 4 expressed diphasic a:l,2, 42 diphasic i:e,n,x and remaining 19 monophasic e,n,x. That the hidden phase of the last type is i was demonstrated on three PLT22 sensitive clones by transduction to Sal. paratyphi B SW666 b:-. These results show that both a and enx is transduced from the phase-2 culture, and when a is transduced the resulted transductions remain as diphasic strains whereas when e,n,x is transduced some transductional clones become to be monophasic. By anti-enx NGA selection, i-phase cultures are obtained rarely from the e,n,x-monophasic transductional clones. The i-phase cultures thus obtained are also monophasic.

The stabilization of H_2 state in Sal. abortus-equi is therefore caused by a gene which is linked to H_2 . The controller of H_2 stability will be given a symbol Sh_2 . The genotype of SW726 is described as $H_1^a H_2^{enx} Sh_2^-$.