Abstract

Typhoid fever, caused by *Salmonella typhi*, is currently one of the serious human diseases in Kenya, sometimes occurring in epidemic proportions. It is an enteric disease, frequently becoming septicemic, causing high mortalities among patients. The disease is treatable if diagnosed early and correctly; one method of diagnosis is by serological testing using known standardized, stained *Salmonella typhi* antigen, referred to as Widal test. There are a number of Widal-test kits available in Kenya for this purpose. This study compared five of them, using experimentally raised rabbit antisera, against *Salmonella typhi*, collected over 4 weeks after initial inoculation of antigen. Respective rabbit serum raised using *Salmonella typhimurium* was used to check on the validity of the cut-off points, with respect to cross-reactivity among the *Salmonella* organisms and other related ones. Both slide and tube agglutination tests (doubling dilutions) were used for this study; the 'O' and 'H' antigens tested separately. In all the kits, the 'O' titre was significantly less than the 'H' titre throughout the experimental period. One kit came out as distinctly more sensitive than the others, i.e. showed higher titres. There were fluctuations in titres, at varying degrees, showed by the other 4 kits, more with 'O' antigens. All kits showed cross-reactions with *S. typhimurium* antibodies. While 'O' and 'H' titres detected by 2 kits were below the cut-off titre of 1:160, three had varying percentages of titres above 1:160, especially for 'O' antigen. The kits showing higher titres with *S. typhi* showed correspondingly higher cross-reacting titres with *S. typhimurium* than others. This showed that some of the kits may not be reliable for definitive typhoid fever diagnosis and that it may be always advisable to couple serological testing with actual isolation of the organism.