A27 THE ANTIBODY DEPENDENT PLAQUE ENHANCEMENT ASSAY-A NEW TECHNIQUE FOR ARBOVIRUS SEROEPIDEMIOLOGY

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The Antibody dependent plaque enhancement (ADPE) assay can be used to detect antibody to a range of arboviruses[1] and is technically as simple as a plaque neutralisation (PRNT) test. Though the assay has been used for the study of "enhancing" antibodies in the pathogenesis of arboviral disease viz Dengue haemorrhagic fever, it has not so far been used as a routine serological technique. In view of its sensitivity (approx. 100 fold more than PRNT or haemagglutination inhibition tests) and its broad reactivity (comparable to the haemagglutination inhibition test), it is a potential alternative to the haemagglutination inhibition (HI) test, and complements the PRNT test in seroepidemiological surveys.

We have carried out PRNT, HI, and ADPE tests in parallel for a range of arboviruses (flavi, alpha and bunyaviruses) on 143 human, 84 pig and 110 cattle sera during the course of an arbovirus seroepidemiological survey in Sri Lanka and report good correlation of ADPE with established techniques. As would be predicted from its higher sensitivity ADPE yields a greater proportion of seropositives than either PRNT or HI.

The test is applicable to a range of mammalian sera (human, cattle, pig, monkey, dog, sheep, goat and rabbit), but not to avian sera. One disadvantage of the technique is that an "antibody prozone" occurs with high titered sera which might be interpreted to be negative. This was to some extent overcome by screening sera at two dilutions (viz 1/10 and 1/100)

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Reference

1. Peiris, J.S.M. & Porterfield, J.S. (1981) *J. Gen. Virol* 57. 119-125