ABSTRACT

*Dientamoeba fragilis*, since its discovery 87 years ago, very little is known about the parasite’s prevalence, biology, life cycle and mode of transmission. The present targeted two vulnerable groups which are the orang asli and school children from the state of Selangor. Out of a total of 409 and 380 stool samples collected from Orang Asli and school children population the prevalence of those infected with *D.fragilis* were 3.9 % and 0.7% respectively. There is a challenge in identifying the parasites in stools and this could be the main contributory reason why information on this parasite is still lacking. The present study is also the first to suggest using potassium dichromate as a preservative as the results showed that the parasite remained intact and could easily be stained even after preservation of more than 12 months. The present study also reported Loeffler’s medium supplemented with 70% horse serum and rice starch as well as modified Jones’ medium supplemented with 10% horse serum and rice starch were ideal culture media to detect and grow *D.fragilis* in *in vitro*. The former supported growth of *D. fragilis* and showed a parasite count of 5.55X10⁴ while modified Jones’ medium showed a parasite of count of 3.3X10⁴ on day 2. The present study also was able to differentiate *D.fragilis* and *Blastocystis* sp. using a simple and effective stain i.e. Modified Fields’ stain which was shown to be better and a more rapid stain than Giemsa and Iron haematoxylin especially when it comes to differentiating the two organisms when grown in cultures. The study also showed that *In vitro* culture at the 18th hour showed the highest parasite count and this proved to be the best time point to harvest parasites for further sub-culture. Furthermore the parasites when harvested at the 18th hour remained viable for the next eight days. This finding was shown to be repeatable. The study also highlighted another mode of reproduction where the organism was seen to elongate prior to the release of a nucleated progeny leaving an empty space at the far end of the original organism. This proves that binary fission is not the only mode of reproduction reported to be seen in *D.fragilis*. In
vivo studies using 36 Sprague dawley rats was carried out to provide a better understanding on the life cycle and parasite transmission. Cyst-like structures which could resist the lysis of distilled water showing a thickened membrane could cause experimental infection in Sprague dawley rats. This is the first study to provide evidence that cyst-like structures do exist in the parasite’s life cycle and these life cycle stages could cause experimental infection in Sprague dawley rats.