Cryptosporidiosis is one of the leading causes of diarrhoeal death in children under 5 globally, as well as causing severe disease in immunosuppressed individuals, such as those with HIV/ AIDs. It also causes severe illness in cattle, having a significant impact on yields. Currently, parasite cultivation methods are limited to co-culture with cell lines that cannot sustain infection and are high maintenance, or the use of infection models such as mice or gnotobiotic piglets. The lack of a cultivation system has compounded into a lack of treatment for those at risk of severe disease, alongside a lack of knowledge on parasite basic biology. Currently, there are no licensed drugs against Cryptosporidiosis in the UK, and a limited number of treatments licensed in cattle. Nitazoxanide is currently the only drug licensed for use in humans in the United States. Our study takes advantage of the human oesophageal squamous cell carcinoma line COLO-680N, which has previously been reported as able to support continuous co-culture of the parasite. This system was adapted in order to develop a working *in vitro* drug assay for *C. parvum*. After infection using freshly excysted sporozoites, parasite growth and development were initially assayed microscopically by counting the free swimming and motile merozoite forms which were released at fixed time points after infection. We tested two drugs in our cultivation system: Paromomycin and Nitazoxanide and the licensed natural product Excential Alliin Plus©. We found significant reductions ($p=>0.0001$) in merozoite output at 120 hours post-infection and an overall suppression in parasite growth over time with all three compounds. An Alamar Blue assay was evaluated as a potential high-throughput screening method, based on evaluating host protection against infection. Alamar Blue is a colorimetric and fluorescent dye which is metabolised by living cells. We were able to record a decrease in Alamar Blue output from COLO-680N cells as the infection inoculum increased, indicating this method could be a viable option to test the effects drugs have both on the parasite, as well as measuring toxicity against host cells. In the future it is anticipated that the adoption of a luciferase expressing parasite into the high throughput assay system may provide an alternative screening method against transfected strains of *Cryptosporidium* spp.