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Inhibitory effect of thymoquinone and capsaicin on *Blastocystis* grown *in vitro*

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Blastocystis is enteric parasites that live in both humans and animals gastrointestinal tracts. Metronidazole (MTZ) is generally preferred in the treatment of *Blastocystis* infection. However, it has been shown to have teratogenic and carcinogenic potential, causing various side effects. In this study, we have made an attempt to find an alternative drug with less toxic side effects in the treatment of *Blastocystis*. For this purpose, the anti-*Blastocystis* activities of thymoquinone (TQ) and capsaicin (CAP) were evaluated *in vitro*. *Blastocystis* isolate was inoculated in Jones medium in 1.5 mL eppendorf tubes supplemented with fetal calf serum (FCS) and incubated at 37°C. The anti-*Blastocystis* effect of TQ and CAP was evaluated by light microscopy (LM) and scanning electron microscopy (SEM). Both TQ and CAP had anti *Blastocystis* effects. It was observed that 500 ug/mL of TQ and 1000 ug/mL of CAP inhibited 100% of *Blastocystis* growth. In the LM and SEM images, it was observed that *Blastocystis* treated with TQ decreased in size and CAP had an effect on the cell surface when compared to the control group. It was concluded that TQ could be a more reliable anti-*Blastocystis* drug compared to MTZ and CAP, but more comprehensive studies should be performed.

Keywords: Capsaicin, Gut infection, Metronidazole, Thymoquinone