

**In vitro effects of hydroalcoholic extracts of Oregano (*Mentha longifolia* L.), Spearmint (*Mentha piperita* L.), Satureja (*Satureja hortensis* L.) and their double and triple mixtures against *Trichomonas Vaginalis***

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**Abstract**

**Background and Purpose:** Trichomoniasis is a protozoan and protozoan progenitor disease which can cause transmitted infections through sexual contact in humans. Trichomoniasis is one of the common non-viral diseases of genital organs caused by flagellate *Trichomoniasis vaginalis*. Vaginal Trichomoniasis is common in women and has symptoms such as pruritus and abnormal discharge. This is a sexually transmitted infection which is often asymptomatic in men. Treatment is done using imidazoles, such as tinidazole, clotrimazole, and metronidazole. Metronidazole and Tinidazole are two selective drugs for the treatment of trichomoniasis however, potential carcinogenesis and teratogenic effects on fetuses in addition to resistance to metronidazole have been reported. Due to the cytotoxic effects of medicinal plants such as pune, peppermint, and tobacco on microbial organisms, this study was carried out to evaluate the effects of these three plants on Trichomoniasis vaginalis.

**Methods and Materials:** In this experimental study, hydroalcoholic extracts of pune, peppermint and sorghum were prepared by the soaking method. Then, different concentrations of hydroalcoholic extracts of pune, peppermint and sardinia, and the double and triple mixture of extracts of these three herbs were added in test tubes containing parasite culture medium. In the ninth tube, 50 µg of metronidazole was added to the culture medium. Only DMSO was added to the tenth tube while 50 µl of the culture medium was added to the 11th tube. Then, 104 Trichomoniasis parasites (constant concentration of the parasite) were added to all environments kept in the incubator with the temperature of 37 °C. In order to investigate the growth rate of the parasites, the samples were cultured at 12, 24, 48 and 72 hours later, each time 10 µl of each tube was removed and the number of parasites was counted and statistically analyzed.

**Results:** Antiparasitic power of pune, peppermint and sorgean herbs and both binary mixtures in concentrations of 5, 8, 10 and triple mixture of extracts in concentrations of 4, 5, 8 and 10 mg/ml showed excellent inhibitory effect on *Trichomonas* parasites, similar to the effect of metronidazole.

**Conclusion:** According to the results of this study, the triple mixture of hydroalcoholic extract of pune, mint and sardinia has a strong inhibitory effect on *Trichomonas Vaginalis* and can be considered as an alternative drug.

**Keywords:** Medicinal Herbs, *Trichomonas Vaginalis*, Women, Hydroalcoholic Extract, Mixed Trilogy.

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