

## **Anthelmintic Property of Pomegranate Peel Aqueous Extraction Against Ascaris Suum: An In-vitro Analysis**

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**Abstract :** Soil-Transmitted Helminth (STH) infections caused by helminths are the most prevalent neglected tropical diseases (NTDs). They are commonly found in warm, humid regions and developing countries, particularly in rural areas with poor hygiene. Occasionally, human hosts exposed to pig manure may harbor *Ascaris suum* parasites without experiencing any symptoms. To address the significant issue of helminth infections, an effective anthelmintic is necessary. However, the effectiveness of various medications as anthelmintics can be reduced due to mutations. In recent years, there has been a growing interest in using plants as a source of medicine due to their natural origin, accessibility, affordability, and potential lack of complications. Herbal medicine has been advocated as an alternative treatment for helminth infections, especially in underdeveloped countries, considering the numerous adverse effects and drug resistance associated with commercially available anthelmintics. Medicinal plants are considered suitable replacements for current anthelmintics due to their historical usage in treating helminth infections. The objective of this research was to investigate the effects of aqueous extraction of pomegranate peel (*Punica granatum* L.) as an anthelmintic on female *Ascaris suum* in vitro. The in vitro assay involved observing the motility of *Ascaris suum* in different concentrations (25%, 50%, 75%, and 100%) of pomegranate peel aqueous extraction, along with mebendazole as a positive control. The results indicated that as the concentration of the extract increased, the time required to paralyze the worms decreased. At 25% concentration, the average time for paralysis was 362.0 minutes, which decreased to 181.0 minutes at 50% concentration, 122.7 minutes at 75% concentration, and 90.0 minutes at 100% concentration. The time of death for the worms was directly proportional to the concentration of the pomegranate peel extract. Death was observed at an average time of 240.7 minutes at 75% concentration and 147.7 minutes at 100% concentration. The findings suggest that as the concentration of pomegranate peel extract increases, the time required for paralysis and death of *Ascaris suum* decreases. This indicates a concentration-dependent relationship, where higher concentrations of the extract exhibit greater effectiveness in inducing paralysis and causing the death of the worms. These results emphasize the potential anthelmintic properties of pomegranate peel extract and its ability to effectively combat *Ascaris suum* infestations. There was no significant difference in the anthelmintic effectiveness between the pomegranate peel extract and Mebendazole. These findings highlight the potential of pomegranate peel extract as an alternative anthelmintic treatment for *Ascaris suum* infections. The researchers recommend determining the optimal dose and administration route to maximize the effectiveness of pomegranate peel as an anthelmintic therapeutic against *Ascaris suum*.

**Keywords :** pomegranate peel, aqueous extract, anthelmintic, in vitro

**Conference Title :** ICBM 2024 : International Conference on Bacteriology and Microbiology

**Conference Location :** Dubai, United Arab Emirates

**Conference Dates :** January 18-19, 2024