

Pomegranate Tincture (*Punica granatum L.*) Showing Antiangiogenic Activity on Chicken Egg embryo CAM Assay

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Abstract: Angiogenesis, the physiological process through which new blood vessels form from pre-existing vessels, is essential for growth and development, but it also plays a critical role in pathological conditions such as cancer, diabetic retinopathy, and rheumatoid arthritis. Inhibiting angiogenesis is considered a promising therapeutic approach, particularly in cancer, where tumor growth and metastasis depend heavily on neovascularization. Natural plant-derived compounds have attracted significant interest in recent years due to their potential antiangiogenic properties and relatively low toxicity. *Punica granatum* (pomegranate) is a widely consumed fruit known for its antioxidant, anti-inflammatory, and anticancer properties, primarily attributed to its rich content of polyphenols, including punicalagins, ellagic acid, and anthocyanins. This study aims to evaluate the antiangiogenic activity of *Punica granatum* extract using the Chick Chorioallantoic Membrane (CAM) assay, a well-established in vivo model for studying angiogenesis. Fertilized chicken eggs were incubated and on the 7th day of embryonic development, sterile filter paper discs soaked in varying concentrations of pomegranate extract were placed on the CAM surface. After 72 hours of incubation, the CAMs were harvested and examined under a stereomicroscope to assess the degree of vascularization. Quantitative analysis was performed by counting the number of blood vessel branch points in treated versus control groups. The results showed a concentration-dependent inhibition of angiogenesis in the CAMs treated with *Punica granatum* extract. Higher concentrations of the extract resulted in a significant reduction in the number and complexity of blood vessels compared to the control group. This suggests that *Punica granatum* possesses potent antiangiogenic properties, potentially through the downregulation of pro-angiogenic factors or through antioxidant-mediated inhibition of endothelial cell proliferation and migration.

Keywords: *Punica granatum*, angiogenesis, chorioallantoic Membrane Assay, antiangiogenic

