

Anti-Angiogenesis Studies of the Aerial Parts of *Catharanthus roseus* with Special Emphasis to Ethyl Acetate Extraction

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Abstract:- The current research work deals with the investigation of the anti-angiogenesis study of the aerial parts of *Catharanthus roseus*. The activity was evaluated after the 21 days of incubation. The work showed that the plants material is highly potent in terms of anti-angiogenesis which is a type of cancer. The extraction was carried out in ethyl acetate so as to get the flavonoid rich fraction and the positive control we used was also flavonoids.

I. INTRODUCTION

Cancer is a class of diseases in which a cell or a group of cells display uncontrolled growth, invasion and metastasis (Jemal A et al., 2004). During development, cell division and cell differentiation are carefully regulated, but often the control that regulate cell multiplication breaks down and cells begins to grow and divide even through the body doesn't need them. The cells have the ability to divide without responding to regulation, thus producing a group of cells, which can expand indefinitely (Schiller JH et al., 2002).

Angiogenesis is the formation of new blood vessels. This process involves the migration, growth and differentiation of endothelial cells, which line the inside wall of blood vessels. The process of angiogenesis is controlled by chemical signals in the body (Shih T et al., 2006).

II. AIM AND OBJECTIVES

➤ Aim

To evaluate the biological potency of the areal parts of the *Catharanthus roseus* by performing anti-cancer activity using different concentration.

➤ Objectives

- Authenticated and genuine samples were collected from the western Ghats. After shade drying and coarse powdering it was then extracted using ethyl acetate and standardized to get different concentrations.
- Performing anti-cancer activity using anti-angiogenesis method using 4 different concentrations.
- After incubation for 14 days photographs were taken.

III. MATERIALS AND METHODS (ALL AS PER STANDARD UWIN ANALYTICAL METHODS)

Collection of medicinal plant The plant sample used for the study was Madagascar periwinkle (*Catharanthus roseus*), which commonly known as Nithyakallyani, savakottappacha, savam-naripoovu in Tamilnadu and Kerala. The sample was collected from the Malappuram district Kerala.

➤ Preparation of the Extraction

The plant material was washed thoroughly with tap water and rinsed with distilled water. Shade dried powdered material around 5-10 gm and weighted accurately was taken with 250 ml round bottom flask with condenser. Dried material was transferred into the flask, which contain 100 ml of the solvent. 3-4 glass beads were added for avoiding the bumping of the solvent. The flask was then placed in a mantle and connect the condenser. The rubber tubing was connected to the condenser and allowed the water to flow from the bottom to top. The mantle switch was turned on after ensuring the continuous flow of water. The temperature was adjusted according to the boiling point of the solvent being used. The process continued for three hours. After 3 hours the extract was collected alone from the flask by decanting and 100 ml of fresh solvent was added and heating process was started again. The process continued for 2 hours and extract was collected and was added to the first 100 ml. again 100 ml of the solvent was added to the flask and boiled again it for 2 hours. All the three extracts were clubbed and concentrated it into 50 ml. The extract was filtered through Whatman filter paper and stored in 50 ml standard flask.

➤ Collection of Fertilized Egg

The fertilized eggs were bought from Palakkad district Kerala.

➤ Procedure

The fertilized egg surface were cleaned using ethanol. Label the concentration on the surface of eggs respectively. The plant extract was diluted in 10 ml Di Methyl Sulph Oxide (DMSO)

Take different concentration of the sample extraction respectively. (1 ml of solution contain 346 mg/ml *Catharanthus roseus* extract).

0.1 ml = 34.6 mg, 0.2 ml = 69.2 mg, 0.5 ml = 173 mg, 1.0 ml = 346 mg, 0.01 ml = 3.46 mg, 0.005 ml = 1.73 mg

A small incision was made on the egg shell using a surgical blade. The plant extract was added in to the respective eggs through the cut on surface. The standards, Hydroxy benzaldehyde (0.2 mg), Quercetin flavand (0.2 mg), Cinnamix acid (0.2 mg) were added respectively. The eggs were closed tightly in order to control the air. The eggs were incubated for 14 days at 37C.

IV. RESULTS AND OBSERVATIONS

The anti-cancer activity of the extract was carried out in the fertilized eggs. After the incubation of 14 days the anticancer activity of the sample (*Catharanthus roseus*) was evaluated. The black color represents the anti-cancer activity in the eggs. The concentration of 0.5 ml solution (contain 173 mg extract) showed significant anti-cancer activity. The newly borne blood vessels were eradicated using the ethyl acetate extract.

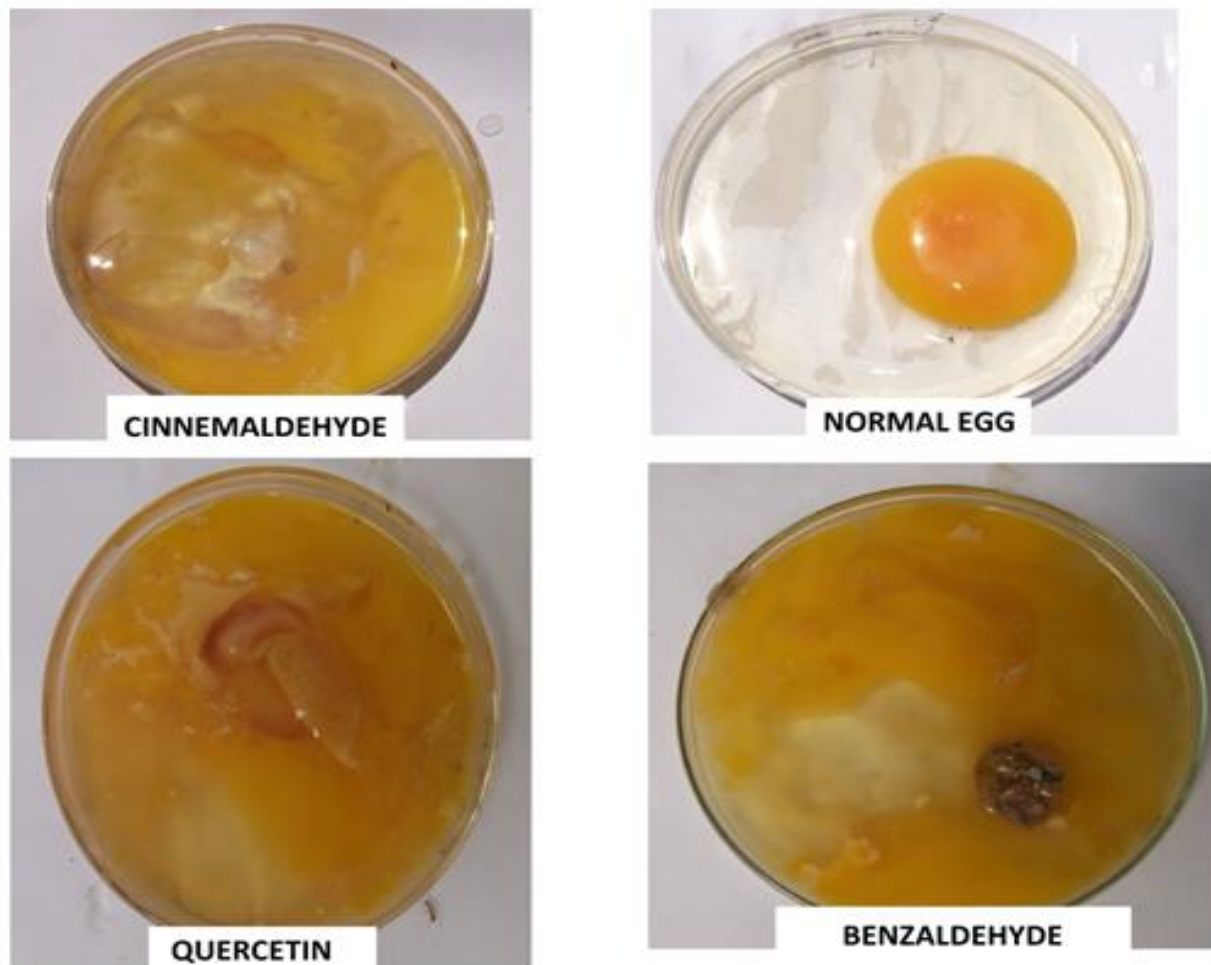


Fig 1

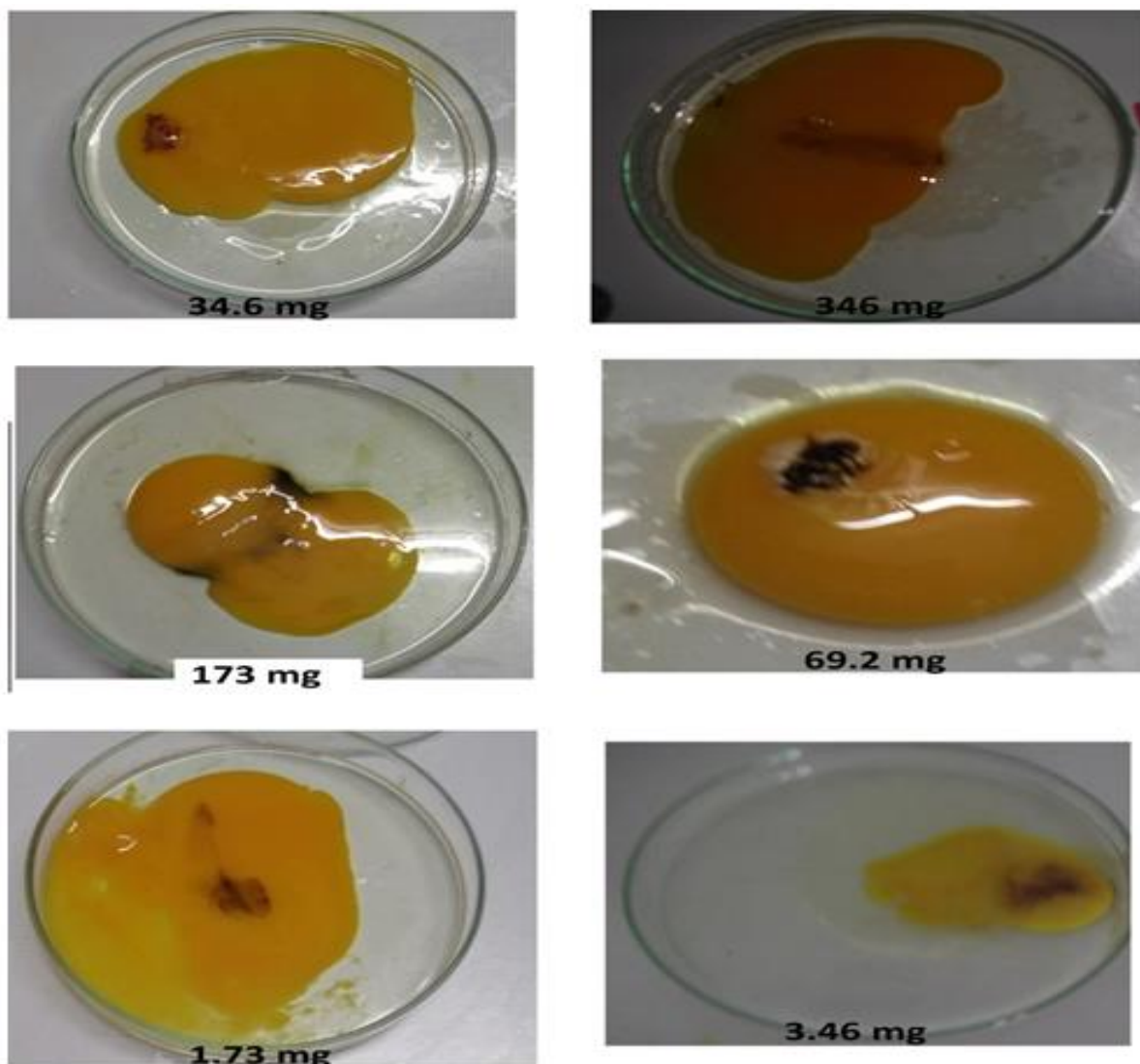


Fig 2

V. SUMMARY AND CONCLUSION

The present study deals with the scientific evaluation of *catharanthus roseus* using anti-angiogenesis method with fertilized eggs. From the present investigation we conclude that the concentration of 0.5 ml solution (contain 173 mg extract) showed **significant** anti-cancer activity. The newly born blood vessels are eradicating using the ethyl acetate extract. Finally we concluded that the plant possess significant anti-cancer activity in in-vitro methods. Thus we conclude that the plant *catharanthus roseus* is biologically significant have the anti-cancer activity.

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