

The Effect of Methanolic extract of Curry Leaves (*Murraya koenigii*) on Angiogenesis in Chick Embryo

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Abstract:

This Paper is about the effect of Methanolic extract of Curry Leaves on angiogenesis in chick embryos, Angiogenesis is the Process formation of new blood vessels from the earlier small blood vessels, the required numbers of eggs were collected from a backyard poultry farm located at Kerli village. The eggs were placed in an incubator for incubation as per experimental design. Curry leaves were collected from the local market of Kolhapur city. The stock solution was prepared in 1mg/ml concentration. To study the effect eggs were kept in two groups, the first group kept as a control group and the second group as an experimental group. The experimental group was injected with stock solution after 48 h of incubation of eggs. In the experimental group, the eggs were numbered as Group 1, Group 2, Group 3, etc. Egg of Group 1 was incubated up to 72 h. Egg of Group 2 was incubated up to 96 h and Egg group 3 was incubated up to 120 h. After the incubation control and experimental group eggs were observed and compared. It is observed in the experimental group that there was an insignificant reduction in the weight of the chick embryo at 72 h and 96 h after treatment with curry leaves extract as compared to the weight of the chick embryo in the control group. The curry leaves can have ability to reduce the angiogenesis in the chick embryo.

Key Words: Angiogenesis, curry leaves, *Murraya koenigii*, Chick embryo, Blood vessels

Introduction:

The mechanism of angiogenesis involves the splitting of existing blood vessels to form new blood vessels. The vessel wall extends into the lumen causing the single vessel to split into two vessels forming artery and vein bifurcations (Adair and Montani 2011).

Chick embryo chorioallantois membrane is the most popular model to study angiogenesis. Thus, the chorioallantois membrane (CAM) assay is well-established and widely as a model to examine angiogenesis and anti-angiogenesis effects.

Murraya koenigii (Curry leaves):

Murraya koenigii is a small spreading shrub that belongs to the family Rutaceae. It is commonly found in Himachal Pradesh and deciduous forest of the Indian and Malaysian peninsular (Ajay et al, 2011). *Murraya koenigii*, commonly known as curry leaf or kari patta in Indian dialects, belonging to Family Rutaceae which represent more than 150 genera and 1600 species (Satyvati et al, 1987).

Material and Method:

Eggs, Incubator, Curry leaves, Soxhlet Extractor, Beakers, Petri Dish, Watch Glass, Syringe, Methanol, Vaseline, Cotton Medical Tape. Dried curry leaves, Methanol (or other suitable solvent), Heating mantle or hot

plate/stirrer, Weighing scale, Glassware (beakers, flasks, etc.), Rotary evaporator or other concentration equipment, Analytical equipment for compound analysis (optional)

Plant Extraction: -

Collection of plant source (Curry leaves):

Curry leaves were collected from the local market of Kolhapur city. These were washed thoroughly in order to remove the dirt and dust. Then dry in shade so that it is maintaining medicinal qualities. The dried leaves were crushed with the help of mixer grinder. This powder of curry leaves was stored in airtight jar and used for further experiments.

Equipment.

Experimental design and introduction of dose:

The required numbers of eggs were collected from back yard of people located at Kerli Tal-Karveer, Kolhapur. After collection, healthy and almost same sized eggs of *Gallus domesticus* were selected by considering parameters. The colour of egg is light brown, shape is small and oval. The eggs were placed in incubator for incubation as per experimental design. The curry leaves were completely shadow dried and grinded and the powder was used to make extract using Soxhlet apparatus and injected to developing embryo in eggs which were incubated at 37°C for different exposure period.

Eggs were selected to start of experiment. For the present experiment two groups of eggs were prepared first group kept as control group and second group as an experiment group injected with curry leaves solution after 48 hours of incubation of eggs. The eggs were numbered as Group 1, Group 2, Group 3, etc. Egg of Group 1 was incubated up to 72 h. Egg of Group 2 was incubated up to 96 h and Egg group 3 was incubated up to 120 h. All eggs were kept in incubator which was sterilized by using 70% alcohol to maintain the aseptic condition and made it free from germ and microorganisms.

The incubator was pre- incubated to maintain 37°C temperature which is essential for the development of chick embryo. After 48 hour of incubation eggs were again sterilized with 70% alcohol under aseptic condition the eggs were treated with 0.3 ml of curry leaves extract solution. After injection eggs with developing embryo resealed with adhesive sterile tapes.

After observation of chick embryo body weight of embryo was taken, and comparison done between control group and experimental group

Observation of chick embryo:

After the incubation control and experimental group eggs were observed and compared. It is observed in the experimental group that there is an insignificant reduction in the weight of chick embryo at 72 hours, 96 hours and 120 hours after treatment with curry leaves extract as compare to weight of chick embryo in control group. The difference between weight of control egg embryo and experimental egg embryo are given below:

Table 3: Weight of chick embryo:

Sr. No.	Control		Treated	
	Incubation hours	Weight of Embryo	Incubation hours	Weight of Embryo
1	72	0.128 gm	72	0.103 gm
2	96	0.239 gm	96	0.122 gm
3	120	0.285gm	120	0.265gm

Changes in angiogenesis:

After the incubation eggs of control and experimental group eggs were observed and compared. It is observed that in that there is reduction in the weight of treated chick embryo as compare to weight of chick embryo in control group. There is significant reduction in the weight of embryo at 72 hours, 96 hours and 120 hours after treatment with curry leaves extract. It is also observed that the treated embryo show reduced number of blood vessels as compare to the control embryo also reduction in size of blood vessel. Reduced in size of heart and reduced in movement of heart the weight of embryo is also reduced

Conclusion:

In present to study the effect of curry leaves extract against development of chick embryo were observed. During the study the embryo showed some changes. The treated embryo after intoxication with 0.3 ml curry leaves extract showed reduced the number of blood vessels, reduction in the body weight of embryo. As well as the angiogenesis pattern get disturbed by extraction of curry leaves treatment. It can be concluded that curry leaves extract can induce toxic interaction which can highly reduce the viability of the embryo.

References:

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