



Comparison of Regeneration in Adult and Juvenile *Eisenia fetida* and Effect of Riboflavin on Regeneration

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Abstract : *Regeneration in adult and juvenile earthworm, Eisenia fetida was studied by amputating at different regions. The rate of regeneration was faster in juveniles as compared to adults. Further, the role of coelomic fluid and riboflavin on the rate of regeneration was verified. Regeneration was delayed in the earthworms from which coelomic fluid was extracted before amputation, suggesting coelomic fluid was important for regeneration activity. Infrared (IR) spectra of riboflavin, coelomic fluid, skin of earthworm and metabolite of bacteria found in the gut of earthworm were found to be similar,*

suggesting the presence of riboflavin in the body of earthworm. The study concluded that riboflavin could be used in regenerative medicine.

Keywords: *Regeneration, Amputation, Coelomic fluid, Riboflavin, FTIR.*

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Introduction :

Regeneration is a process in which damaged tissue grows again. Earthworms are unique and valuable model to study regeneration (Park et al., 2013). Among earthworms, the lumbricid earthworm *Eisenia fetida*, has been commonly used for research into regeneration, because it is easy to culture and handle them in the laboratory.

The promotive role of vitamins in growth and development has been found by earlier workers in mice (Maden et al., 1998). Riboflavin (vitamin B2) is now recognized as a potentiator of immunocompetence and tissue regeneration capacity in earthworms and other organisms (Plytycz and Morgan, 2011; Johnson et al., 2012).