DEVELOPMENT OF A HPTLC METHOD FOR STUDYING ORGAN DISTRIBUTION AND BIOTRANSFORMATION OF EMBELIN IN RATS

Aruna Jadhav[a], Pradum Shinde[a], Sagarika Dhamne[a] and Sneha Agrawal[a*]

(Received 18 March 2026) (Accepted 16 May 2026)

ABSTRACT

Embelin, a natural benzoquinone primarily used as an active phytoconstituent, is obtained from the seeds of *Embelia ribes*, family Primulaceae. *In vitro* pharmacological activities of embelin are well documented, with diverse effects. Although data from clinical studies on embelin are limited, the crude drug has been consumed by humans since, ancient times to treat gastrointestinal diseases and disorders. The present study involves the development and validation of an HPTLC method for studying the organ distribution and biotransformation of embelin in rats. After 24 h of oral administration of 200 mg kg^{-1} of embelin to Wistar rats, the animals were euthanized. Organs like the brain, heart, lungs, liver, kidneys, thymus and spleen were dissected, homogenized, and subjected to solvent extraction. The organ extracts were analyzed using a developed and validated HPTLC method with toluene-ethyl acetate-formic acid (4.5:5:0.5 molar ratio) as the solvent system. The developed plates were scanned at 290 nm and 366 nm, which showed the presence of embelin and its metabolites at the organ sites, indicating its ability to penetrate multiple tissues. This study demonstrates how embelin is distributed, deposited, and metabolized across different organs and confirms that the validated HPTLC method is suitable for its analysis.