

DOI: 10.4274/mirt.24.01.15

## Radiochromatographic Determination of <sup>131</sup>I Labeled Eugenol

F. Zümrüt Biber Müftüler<sup>1</sup>, Emine Derviş<sup>2</sup>, Buse Cetkin<sup>2</sup>, Volkan Tekin<sup>1</sup>, Ayfer Yurt Kılcar<sup>1</sup>, Perihan Unak<sup>1</sup>

<sup>1</sup>Ege University Faculty of Medicine, Institute of Nuclear Sciences, Department of Nuclear Applications, İzmir, Turkey

<sup>2</sup>Ege University Faculty of Medicine, Department of Chemistry, İzmir, Turkey

### Abstract

Phenolic phytochemicals are a broad class of nutraceuticals found in plants which have been extensively researched by scientists for medicinal potential. Eugenol, a phenolic natural compound available in the essential oils primarily extracted from clove plants, has been exploited for various medicinal applications. It possesses antioxidant, antimutagenic, antigenotoxic, anti-inflammatory and anticancer properties. The goal of current study was to extract Eugenol compound from clove plant and radiolabel the eugenol with <sup>131</sup>I which is a well known radioisotope for imaging and therapy in Nuclear Medicine by utilizing iodogen method. The yield of radiolabeling of Eugenol (<sup>131</sup>I-E) was calculated over 80% by Thin Layer Radio Chromatography and High Performance Liquid Radio Chromatography methods. Structural analysis of Eugenol was confirmed by Liquid Chromatography Mass Spectroscopy. Lipophilicity and stability studies were performed. Due to the attachment of iodine to Eugenol, radioiodinated Eugenol was more lipophilic. Stability of <sup>131</sup>I-E was appropriate for study period.

All experimental results suggest that <sup>131</sup>I labeled Eugenol compound may be used in the applications of Nuclear Medicine as a radiolabeled agent for imaging and therapy on various cancer types.

**Key words:** Eugenol, radiolabeling, <sup>131</sup>I, radiochromatography

**Preferred Presentation Type:** Poster Presentation