Investigations into the enhancement of the properties of the natural luminophore – Norioli

Tornike Kotua

e-mail: Tornike.kotua290@ens.tsu.edu.ge

Department of Chemistry, Faculty of Exact and Natural Sciences

Ivane Javakhishvili Tbilisi State Univertisy

3, I. Chavchavadze Avenue, Tbilisi, 0179, Georgia

A novel approach has been developed for isolating a luminescent mixture from petroleum pipeline residues, eliminating the need for vacuum distillation or adsorbents. Two methodologies have been developed for the removal of resinous impurities from the luminescent mixture obtained from the residue and from "Noriol". a) column chromatography, using silica gel as the adsorbent and petroleum ether as the eluent; b) washing with concentrated sulfuric acid. It has been demonstrated that the luminescent mixture obtained from petroleum pipeline residues and "Noriol" contains 50% and 40% non-luminescent resinous impurities, respectively. Following the elimination of these impurities, the materials exhibit substantially enhanced properties, most notably an increased luminescence intensity. Accordingly, two further methodologies have been proposed. a) chemical modification of the mixtures through nitration, subsequent reduction of the nitro derivatives, and condensation of the resulting amines with aromatic aldehydes; b) Incorporation of "Noriol" with compounds containing pre-synthesized bis-arylazomethine conjugated frameworks.