CEI
CENTRAL EUROPEAN INITIATIVE

BOOK OF ABSTRACTS

Eleventh International Conference on Radiation, Natural Sciences, Medicine, Engineering, Technology and Ecology

June 19 - 23, 2023 | Hunguest Hotel Sun Resort | Herceg Novi | Montenegro

Eleventh International Conference on Radiation,
Natural Sciences, Medicine, Engineering, Technology and Ecology
June 19 - 23, 2023 | Hunguest Hotel Sun Resort | Herceg Novi | Montenegro
BOOK OF ABSTRACTS rad-conference.com

Sensory properties of new films based on poly(vinyl-alcohol) and pyridone azo dyes

Nataša Nikolić[1], Slavica Porobić[2], Julijana Tadić[2], Ivica Vujčić[2], Marija Kojić[2], Jelena Lađarević[1], Dušan Mijin[1]

1University of Belgrade, Faculty of Technology and Metallurgy, Department of Organic Chemistry, Karnegijeva 4, P. O. Box 3503, 11120, Belgrade, Serbia
2University of Belgrade, Vinča Institute of Nuclear Sciences - National Institute of the Republic of Serbia, P. O. Box 522, 11001 Belgrade, Serbia

https://doi.org/10.21175/rad.abstr.book.2023.32.10

Polymeric materials are widely used in the chemical and optical industries, the packaging materials industry, and biomedicine. New technologies and the search for innovative and sustainable solutions have contributed to the development of polymer sensors and smart materials. Poly(vinyl-alcohol) (PVA) is a thermoplastic polymer soluble in water. It belongs to the group of non-toxic and completely biodegradable polymers, with excellent thermal and mechanical properties. Polymer-colored films have great potential as sensor systems, primarily due to their visual color change, which makes them easy to use. Azo dyes, which are used for coloring polymer films, represent the most important class of synthetic dyes, and their exceptional properties are reflected in high extinction coefficients, as well as excellent fastness to light and wet processing. Traditionally, azo dyes are used in the food and cosmetic industries, and are also used as pH indicators.

In this work, in addition to the synthesis of azo pyridone dyes, polymeric films were also synthesized. The first series of films were synthesized based on PVA and newly synthesized azo dyes, and the sensory properties of the new films were tested. The second series of films were synthesized in order to test the films as dosimeters for γ-radiation, and for this reason, TTC was added to their synthesis. The dye used in the experiments were characterized by ATR-FTIR, NMR and UV-Vis spectra. The chemical structure of the synthesized films was analyzed by ATR-FTIR spectroscopy. The sensory properties of the film were tested in solutions of different pH values, while the possibility for application in dosimetry was tested at different doses of γ-radiation at the ^{60}Co source. Changes in the color of the films were monitored spectrophotometrically by recording reflection spectra.

TITLE: Book of Abstracts
EDITOR: Prof. Dr. Goran S. Ristić
TECHNICAL EDITING: Aleksandar Ristić, MD
COVER DESIGN: Vladan Nikolić, PhD
YEAR OF PUBLISHING: 2023
PUBLISHER: RAD Centre, Niš, Serbia
FOR THE PUBLISHER: Prof. Dr. Goran S. Ristić
CD BURNING AND COPYING: RAD Centre, Niš, Serbia
PRINT RUN: Electronic edition - 50 CDs (CD-R)
ISBN: 978-86-901150-6-8
www.rad-conference.org

CIP - Каталогизација у публикацији Народна библиотека Србије, Београд

539.16(048)(0.034.2)
57+61(048)(0.034.2)

INTERNATIONAL Conference on Radiation, Natural Sciences, Medicine, Engineering, Technology and Ecology (11 ; 2023 ; Herceg Novi)

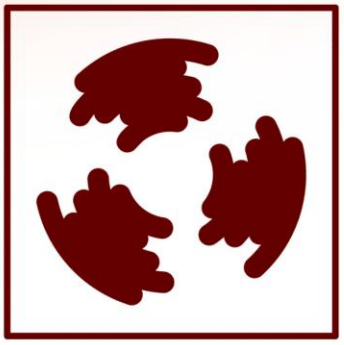
Book of abstracts [Elektronski izvor] / Eleventh International Conference on Radiation, Natural Sciences, Medicine, Engineering, Technology and Ecology (RAD 2023) 19–23.06.2023, Herceg Novi ; [editor Goran S. Ristić]. – Electronic ed. - Niš : RAD Centre, 2023 (Niš : RAD Centre). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 50.

ISBN 978-86-901150-6-8

a) Јонизујуће зрачење -- Дозиметрија -- Апстракти b) Биомедицина -- Апстракти

COBISS.SR-ID 121386249



ISBN-978-86-901150-6-8