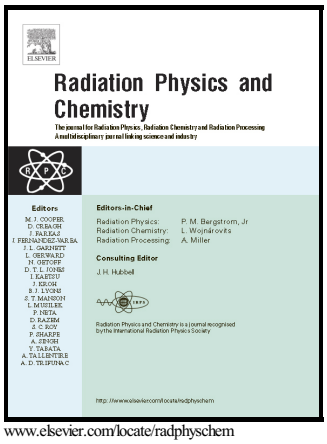

www.elsevier.com/locate/radphyschem

# Irradiated lanoline as a prospective substance for biomedical applications: A spectroscopic and thermal study

Zuzana Hanzlikova, Peter Hybler, Marko Fülop, Jan Ondruska, Klaudia Jomova, Maria Porubska, Marian Valko

PII: S0969-806X(15)00166-8
DOI: http://dx.doi.org/10.1016/j.radphyschem.2015.04.028
Reference: RPC6795

To appear in: *Radiation Physics and Chemistry*

Received date: 8 April 2015
Revised date: 27 April 2015
Accepted date: 29 April 2015

Cite this article as: Zuzana Hanzlikova, Peter Hybler, Marko Fülop, Jan Ondruska, Klaudia Jomova, Maria Porubska and Marian Valko, Irradiated lanoline as a prospective substance for biomedical applications: A spectroscopic and thermal study, *Radiation Physics and Chemistry,* http://dx.doi.org/10.1016/j.radphyschem.2015.04.028

Revised manuscript

# Irradiated lanoline as a prospective substance for biomedical applications: a spectroscopic and thermal study

Zuzana Hanzlikova[a], Peter Hybler[b], Marko Fülop[b], Jan Ondruska[a], Klaudia Jomova[a],

Maria Porubska[a], Marian Valko[c,*]

[a]*Faculty of Natural Sciences, Constantine the Philosopher University in Nitra, SK-949 74 Nitra, Slovakia*

[b]*University Centre of Electron Accelerators in Trenčín, Slovak Medical University, Limbová 12, SK-833 03 Bratislava, Slovakia*

[c]*Faculty of Chemical and Food Technology, Slovak University of Technology, SK-812 37 Bratislava, Slovakia*

Received:

* Author for correspondence:
**Marian Valko**

Department of Physical Chemistry

Faculty of Chemical and Food Technology

Slovak Technical University

SK-812 37 Bratislava

Slovakia

Tel.: +421-2-593 25 750 (land line); Tel.: +421-903467742 (mobile) Fax: +421-2-524 93 198

E-mail: marian.valko@stuba.sk;



## H I G H L I G H T S

- We propose that irradiated lanoline is a substance suitable for medicinal applications
- To emulate the sterilization, lanoline was irradiated with accelerated electron beam
- Aliphatic esters and ethylene sequences $(CH_2)_n$ with $n \geq 4$ were found to be the most stable species following radiation exposure
- A trace amount of organic-in origin free radicals was observed following radiation in dose-dependent manner

## A B S T RA C T

Refined wool wax products, such as lanoline and lanoline derivatives are key ingredients in some of the ointments, cosmetics, pharmaceuticals, waterproof coatings and other products. Beneficial