

# **Syddansk Universitet**

# Preparative-scale isolation of resveratrol metabolites from human urine

Radko, Yulia; Christensen, Kathrine Bisgaard; Christensen, Lars Porskjær

Published in: Resveratrol 2014

Publication date: 2014

Document version Final published version

Citation for pulished version (APA):

Radko, Y., Christensen, K. B., & Christensen, L. P. (2014). Preparative-scale isolation of resveratrol metabolites from human urine. In Resveratrol 2014: 3rd International conference of resveratrol and health (pp. 44). [SO-09]

## **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
  You may not further distribute the material or use it for any profit-making activity or commercial gain
  You may freely distribute the URL identifying the publication in the public portal?

**Take down policy**If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 19. Apr. 2017

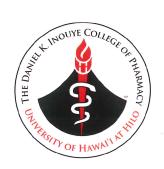
# 2014 RESVERATROL

3rd International conference of resveratrol and health

November 30<sup>th</sup> to December 3<sup>rd</sup>, 2014
Hilton Waikoloa Village • Waikoloa, Hawai'i Island

resveratrol2014.hawaii-conference.com







SO-09 Preparative-scale isolation of resveratrol metabolites from human urine P-10

Yulia Radko, Kathrine Bisgaard Christensen and Lars Porskjær Christensen

Department of Chemical Engineering, Biotechnology and Environmental Technology, Faculty of Engineering, University of Southern Denmark, Campusvej 55, DK-5230 Odense M, Denmark

# lpc@kbm.sdu.dk

The metabolite profile of biofluids from humans and rats after oral intake of trans-resveratrol (t-RES) have shown that the absorption of t-RES is very high but is rapidly cleared from the circulation. The resveratrol metabolites encountered in human urine after oral administration of t-RES or its predominant form in plant-derived foods (trans-resveratrol-3-O-β-D-glucoside) includes t-RES sulfates, glucuronides and conjugates of dihydroresveratrol. Although, the systemic bioavailability of t-RES seems to be low, the accumulation of t-RES and potentially bioactive t-RES metabolites in epithelial cells may contribute to the health-promoting effects of this nutraceutical. However, little is known about the bioactivity of t-RES metabolites, which is probably due to the limited accessibility of these metabolites. t-RES metabolites are usually produced by chemical synthesis but the yields are low. In order to explore the bioactivity of t-RES metabolites in vitro and in preclinical trials a method for preparative isolation of t-RES metabolites from human urine after oral intake of a t-RES-containing dietary supplement was developed. The urine was pre-treated by using solid-phase extraction to give a brown oily residue, which was separated using a combination of different chromatographic methods resulting in the isolation of several t-RES metabolites in preparative-scale including transresveratrol-3-O-sulfate, trans-resveratrol-3,5-O-disulfate, trans-resveratrol-3,4'-O-disulfate, dihydroresveratrol trans-resveratrol-3-O-β-D-glucuronide and conjugates dihydroresveratrol-3-O- $\beta$ -D-glucuronide. The structures of the isolated metabolites were elucidated by NMR and LC-DAD-MS/MS. The present method enables the isolation of t-RES metabolites in relative large quantities for testing in preclinical trials and is a good alternative to chemical synthesis of conjugate metabolites of t-RES and dihydroresveratrol. The method is reliable, reproducible, and is relatively easy to apply and may also find use to reveal and isolate hitherto unknown or not fully characterized t-RES metabolites in human urine, which may help to shed light on the metabolism of t-RES in humans and thus its health-promoting effects.