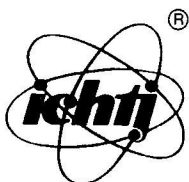


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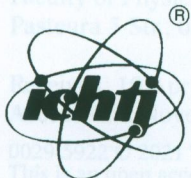
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E. Dąbrowska-Szewczyk
Maria Skłodowska-Curie Memorial Cancer
Center and Institute of Oncology
Department of Medical Physics
W. K. Roentgena 5 Str., 02-781 Warsaw, Poland
and University of Warsaw
Faculty of Physics, Biomedical Physics Division
Pasteura 5 Str., 02-093 Warsaw, Poland
E-mail: e.dabrowska@pim.oi.p.l

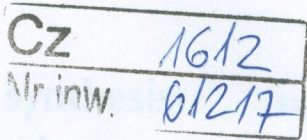
A. Zawadzka, A. Walewska, P. Kukołowicz
Maria Skłodowska-Curie Memorial Cancer
Center and Institute of Oncology
Department of Medical Physics
W. K. Roentgena 5 Str., 02-781 Warsaw, Poland

B. Brzozowska
University of Warsaw
Faculty of Physics, Biomedical Physics Division
Pasteura 5 Str., 02-093 Warsaw, Poland



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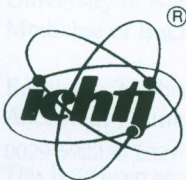
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Keywords: Gamma radiation • China • *Inonotus obliquus* • Metabolic products • Dose rate dependence

Introduction

The parasitic fungus *Inonotus obliquus*, also known as the Chaga mushroom, *Hymenochaetaceae*, grows on the trunk of birch and other trees in the subarctic region of the northern hemisphere [1]. It has been found to have a wide range of medicinal properties [2]. It produces various types of metabolites such as phenols, polycyclics, triterpenoids, and steroids [3]. The phenolic compounds found in *I. obliquus* show great potential for the scavenging of free radicals [4]. Past research involving submerged cultures of this species has focused on the production of biomass [5] and the accumulation of phenolic compounds [6]. The great majority of research involving gamma radiation and mushroom metabolism has been a conditioning agent with harvested mushrooms or extracts, aiming to increase nutrient or antioxidant levels through the breakdown of existing compounds [7, 8]. In this study, we used gamma irradiation of submerged *I. obliquus* mycelium, followed by cultivation, as a first to show dose production of biologically active metabolites, in response to the oxidative stressor represented by radiation exposure, as a biotransformation process. We present changes in



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