



Tipo	Periódico
Título	Enzymatic Hydrolysis of Rutin: Evaluation of Kinetic Parameters and Anti-Proliferative, Mutagenic and Anti-Mutagenic Effects
Autores	Sobreiro, Mariana Alves; Della Torre, Adriana; De Araújo, Maria Elisa Melo Branco; Canella, Paula Renata Bueno Campos; De Carvalho, João Ernesto; Carvalho, Patrícia De Oliveira; Ruiz, Ana Lúcia Tasca Gois
Autor (es) USF	Sobreiro, Mariana Alves; De Araújo, Maria Elisa Melo Branco ; Canella, Paula Renata Bueno Campos; Carvalho, Patrícia De Oliveira
Autores Internacionais	
Programa/Curso (s)	Programa de Pós-Graduação Stricto Sensu em Ciências da Saúde
DOI	<a href="https://doi.org/10.3390/life13020549">https://doi.org/10.3390/life13020549</a>
Assunto (palavras chaves)	quercetin-3-O-glucoside; hesperidinase; genotoxicity test
Idioma	Inglês
Fonte	Título do periódico: Life-Basel ISSN: 2075-1729 Volume/Número/Paginação/Ano: 13, 549, 2023
Data da publicação	16/02/2023
Formato da produção	Impressa
Resumo	<p>The bioavailability of glucoside flavonoids is influenced by the nature of the sugar, glucosides being absorbed faster than rhamnoglucosides, for example. One strategy to enhance the bioavailability is enzymatic hydrolysis. In this study, some kinetic parameters of hesperidinase-mediated hydrolysis of rutin were evaluated using an UHPLC/QTOF-MS<sup>E</sup> analysis of the products of a bioconversion reaction. The resulting hydrolyzed rutins (after 4, 8 and 12 h of reaction) were submitted to anti-proliferative and Cytokinesis-Block Micronucleus (CBMN) assays in CHO-K1 cells. In the hesperidinase-mediated hydrolysis, the final concentration of quercetin-3-O-glucoside (Q3G) was directly proportional to the rutin concentration and inversely proportional to the reaction time. At an anti-proliferative concentration (2.5 µg/mL), hydrolyzed rutin derivatives did not show a mutagenic effect, except for the sample with a higher content of Q3G (after 4 h of the enzymatic hydrolysis of rutin). Moreover, the higher Q3G content in hydrolyzed rutin protected the CHO-K1 cells 92% of the time against methyl methanesulfonate-induced mutagenic damage. These results suggested that the anti-mutagenic effect of hydrolyzed rutin might be related to antioxidant and cell death induction. Presenting a good lipophilicity/hydrophilicity ratio, together with antioxidant and anti-mutagenic activities, the hesperidinase-mediated hydrolyzed rutin seemed to be a promisor raw material for the development of food supplements</p>
Fomento	