Journal of Enzyme Inhibition and Medicinal Chemistry, 2012; Early Online: 1–5 © 2012 Informa UK, Ltd.
ISSN 1475-6366 print/ISSN 1475-6374 online
DOI: 10.3109/14756366.2012.670807

informa
healthcare

Short Communication

(3,4-Dihydroxyphenyl)(2,3,4-trihydroxyphenyl)methanone and its derivatives as carbonic anhydrase isoenzymes inhibitors

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Abstract

In this study, we have synthesised (3,4-dihydroxyphenyl)(2,3,4-trihydroxyphenyl)methanone and a series of its derivatives (**5**, **13–16**) and tested the ability of these compounds to inhibit two metalloenzyme human carbonic anhydrase (hCA, EC 4.2.1.1) isozymes, hCA I and hCA II. The synthesised compounds showed inhibitory effect on hCA I and hCA II isozymes. The results showed that synthesised compounds (**5, 13–16**) demonstrated the best inhibition activity against hCA I (IC_{50}: 3.22–54.28 μM) and hCA II (IC_{50}: 18.52–142.01 μM). The compound **14** showed the highest inhibiton effect against hCA I (IC_{50}: 3.22 μM; K_i: 1.19 ± 1.4 μM). On the other hand, the compound **13** showed the highest inhibiton effect against hCA II (IC_{50}: 18.52 μM; K_i: 3.25 ± 1.13 μM).

Keywords: Bromophenols, carbonic anhydrase, isoenzyme, enzyme inhibition