

This article was downloaded by:

On: 28 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

Phosphorylation of Dihydroquercetin by Phosphorous Reagents

Eduard Nifant'ev^a; Mikhail Koroteev^a; Garry Kaziev^a; Tatyana Kukhareva^a; Zarina Dzgoeva^a; Irina Zakharova^a

^a Moscow Pedagogical State University, Russia

Online publication date: 27 October 2010

To cite this Article Nifant'ev, Eduard , Koroteev, Mikhail , Kaziev, Garry , Kukhareva, Tatyana , Dzgoeva, Zarina and Zakharova, Irina(2002) 'Phosphorylation of Dihydroquercetin by Phosphorous Reagents', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 8, 1981

To link to this Article: DOI: 10.1080/10426500213343

URL: <http://dx.doi.org/10.1080/10426500213343>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



PHOSPHORYLATION OF DIHYDROQUERCETIN BY PHOSPHOROUS REAGENTS

*Eduard Nifantsev, Mikhail Koroteev, Garry Kaziev,
Tatyana Kukhareva, Zarina Dzgoeva, and Irina Zakharova
Moscow Pedagogical State University, Russia*

(Received July 29, 2001; accepted December 25, 2001)

Flavanones, polyatomic phenoles of plant origin, exert essential biological functions.¹ They are used widely in medicine as efficient bioantioxidants.² The most efficient of them is probably dihydroquercetin; we recently patented an original method of its isolation.³

Phosphorylation of flavanoid systems presented difficulties because of the presence of many reactive functional groups in their molecules.

The phosphorylation of 3',4',5,7-tetramethoxydihydroquercetin with phosphorous acid halides and amides was performed for the first time.

The obtained phosphites readily add oxygen, selenium, and sulfur and form complexes with transition metals.

In addition, the possibility was shown for the regioselective phosphorylation of dihydroquercetin at the phenolic hydroxyl in position C₇ by phosphorous acid amides. When an excess of phosphorylating agent is used, cyclophosphorylation of the pyrocatechin fragment of the molecule also occurs.

Products of these reactions were isolated and purified by crystallization and column chromatography. Their structure was supported by ³¹P, ¹H, and ¹³C NMR spectroscopy.

REFERENCES

- [1] M. N. Zaprometov, *Phenolic Compounds: Distribution, Metabolism, and Functions in Plants*, Moscow: Nauka (1993), p. 272.
- [2] Yu. O. Teselkin and V. A. Zhambalova, *Biofizika*, **41**, 620 (1996).
- [3] RU Patent 2001 101 592/14 (001570), 18.01.2001.

Address correspondence to Irina Zakharova, Moscow Pedagogical State University, Nesvizhskii per. 3, Moscow 119021, Russia.