

Correction

Correction: Popova et al. Ni-Cu and Ni-Co-Modified Fly Ash Zeolite Catalysts for Hydrodeoxygenation of Levulinic Acid to γ -Valerolactone. *Molecules* 2024, 29, 99

Margarita Popova ^{1,*}, Momtchil Dimitrov ¹, Silviya Boycheva ² , Ivan Dimitrov ¹, Filip Ublekov ³ , Neli Koseva ³ , Genoveva Atanasova ⁴ , Daniela Karashanova ⁵  and Ágnes Szegedi ^{6,*} 

- ¹ Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria; momtchil.dimitrov@orgchm.bas.bg (M.D.); ivan.dimitrov@orgchm.bas.bg (I.D.)
 - ² Department of Thermal and Nuclear Power Engineering, Technical University, 1756 Sofia, Bulgaria; sboycheva@tu-sofia.bg
 - ³ Institute of Polymers, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria; fublekov@polymer.bas.bg (F.U.); koseva@polymer.bas.bg (N.K.)
 - ⁴ Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria; genoveva@svr.igic.bas.bg
 - ⁵ Institute of Optical Materials and Technologies, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria; dkarashanova@yahoo.com
 - ⁶ HUN-REN, Research Centre for Natural Sciences, Institute of Materials and Environmental Chemistry, Magyar Tudósok krt. 2., 1117 Budapest, Hungary
- * Correspondence: margarita.popova@orgchm.bas.bg (M.P.); szegedi.agnes@ttk.hu (Á.S.)

Error in Figure

In the original publication [1], there was a mistake in “Scheme 1. Reaction mechanisms of LVA hydrodeoxygenation to GVL” as published. There is a technical mistake in the formula of γ -valerolactone.

Please see the corrected version below of Scheme 1.

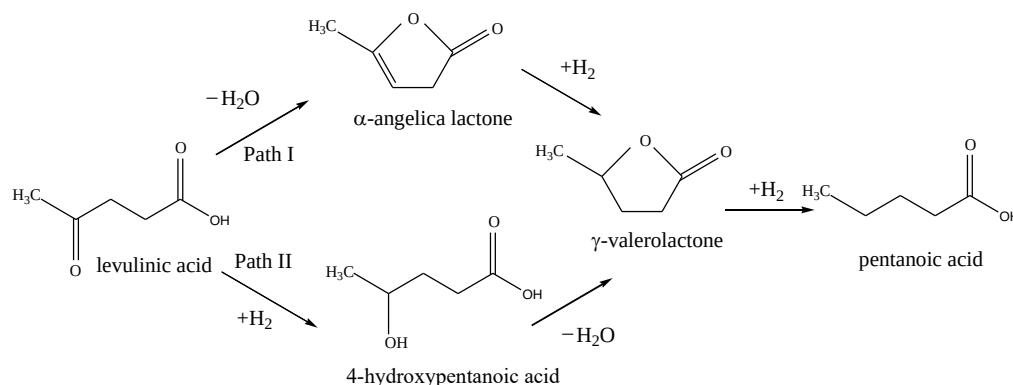


Citation: Popova, M.; Dimitrov, M.; Boycheva, S.; Dimitrov, I.; Ublekov, F.; Koseva, N.; Atanasova, G.; Karashanova, D.; Szegedi, Á. Correction: Popova et al. Ni-Cu and Ni-Co-Modified Fly Ash Zeolite Catalysts for Hydrodeoxygenation of Levulinic Acid to γ -Valerolactone. *Molecules* 2024, 29, 99. *Molecules* 2024, 29, 2648. <https://doi.org/10.3390/molecules29112648>

Received: 14 May 2024

Accepted: 20 May 2024

Published: 4 June 2024



Scheme 1. Reaction mechanisms of LVA hydrodeoxygenation to GVL.

Text Correction

There was an error included in the original publication. There was a mistake in the stated solvent.

A correction has been made to 3. Experimental Part, 3.3. Impregnation of Coal Fly Ash Zeolite with Ni, Co and Cu, paragraphs 2, 3 and 4.

The monometallic fly ash zeolites were prepared by the following procedures: 10 wt.% Ni: 550 mg $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ was dissolved in 1 mL distilled water and was added to 1 g zeolite support by stirring until evaporation of the solvent. Then, the sample was dried at 80 °C for 18 h and calcined at 450 °C for 3 h with a rate of 1 °C/min. The sample was



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

denoted as 10Ni/Z; 10 wt.% Co: 548.2 mg $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ was dissolved in 1 mL distilled water and was added to 1 g AESO support by stirring until evaporation of the solvent. Then, the sample was dried at 80 °C for 18 h and calcined at 450 °C for 3 h with a rate of 1 °C/min. The sample was denoted as 10Co/Z; 10 wt.% Cu: 516.4 mg $\text{Cu}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ was dissolved in 1 mL distilled water and was added to 1 g zeolite support by stirring until evaporation of the solvent. Then, the sample was dried at 80 °C for 18 h and calcined at 450 °C for 3 h with a rate of 1 °C/min. The sample was denoted as 10Cu/Z.

Bimetallic, 5 or 10 wt.% Ni- and Co-modified fly ash zeolite was prepared by the following procedures: 275/550 mg $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ and 274.1/548.2 mg $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ dissolved in 1 mL distilled water was added to 1 g fly ash zeolite sample and then was dried at 80 °C for 18 h. The precursor salts were decomposed in air at 450 °C with a rate of 1 °C/min for 3 h. The samples were denoted as 5Ni5Co/Z and 10Ni10Co/Z, respectively.

Bimetallic, 5 or 10 wt.% Ni- and Cu-modified fly ash zeolite was prepared by the following procedures: 275/550 mg $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ and 258.2/516 mg $\text{Cu}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ dissolved in 1 mL distilled water was added to 1 g zeolite and then was dried at 80 °C for 18 h. The precursor salts were decomposed in air at 450 °C with a rate of 1 °C/min for 3 h. The samples were denoted as 5Ni5Cu/Z and 10Ni10Cu/Z, respectively.

The authors state that the scientific conclusions are unaffected. This correction was approved by the Academic Editor. The original publication has also been updated.

Reference

1. Popova, M.; Dimitrov, M.; Boycheva, S.; Dimitrov, I.; Ublekov, F.; Koseva, N.; Atanasova, G.; Karashanova, D.; Szegedi, Á. Ni-Cu and Ni-Co-Modified Fly Ash Zeolite Catalysts for Hydrodeoxygenation of Levulinic Acid to γ -Valerolactone. *Molecules* **2024**, *29*, 99. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.