

ACCEPTED MANUSCRIPT

This is an early electronic version of an as-received manuscript that has been accepted for publication in the Journal of the Serbian Chemical Society but has not yet been subjected to the editing process and publishing procedure applied by the JSCS Editorial Office.

Please cite this article as: T. Gagić, A. Perva-Uzunalić, Ž. Knez, M. Škerget, *J. Serb. Chem. Soc.* (2019) <https://doi.org/10.2298/JSC181218070G>

This “raw” version of the manuscript is being provided to the authors and readers for their technical service. It must be stressed that the manuscript still has to be subjected to copyediting, typesetting, English grammar and syntax corrections, professional editing and authors’ review of the galley proof before it is published in its final form. Please note that during these publishing processes, many errors may emerge which could affect the final content of the manuscript and all legal disclaimers applied according to the policies of the Journal.

platform chemical for production of various organic acids, such as levulinic and formic acid. Glucose dehydration led to the formation of 1,6-anhydroglucose, while hydrogenation can form sugar alcohol sorbitol. By retro-aldol condensation reactions glycolaldehyde and erythrose and on the other hand glyceraldehyde and 1,3-dihydroxyacetone are formed. Dehydration of glyceraldehyde lead to the formation of pyruvaldehyde, which is further converted into lactic acid. Oxalic acid is also a product of glyceraldehyde. Hydrogenation of glucose can lead to the formation of sorbitol.

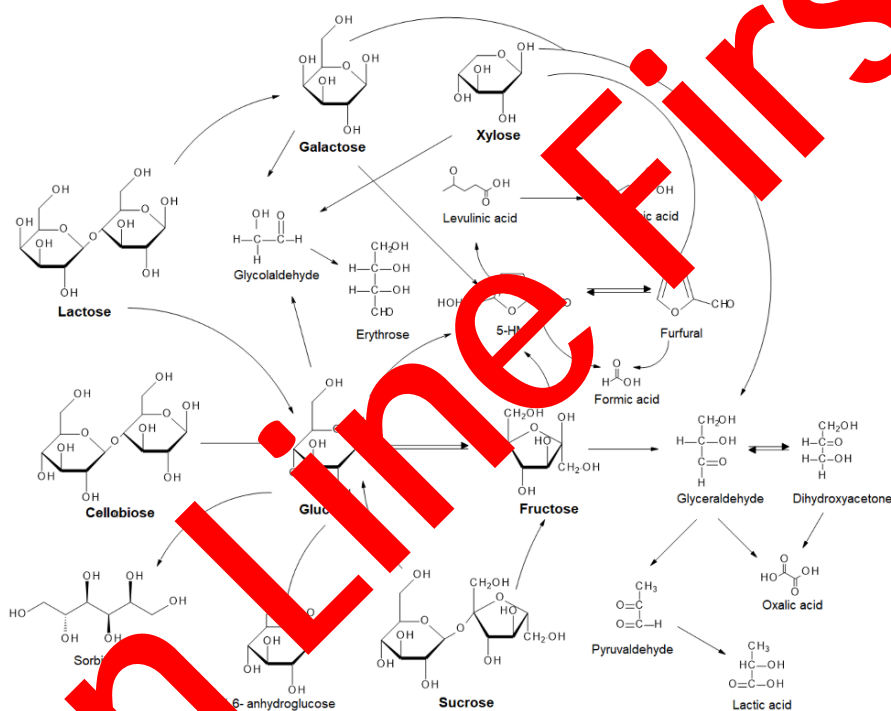


Figure S3. The proposed reaction mechanism of sugar degradation.

REFERENCES

1. S. H. Hajavi, Y. Kimura, T. Oomori, R. Matsuno, S. Adachi, *J. Food Eng.* **68** (2005) 309 (<http://dx.doi.org/10.1016/j.jfoodeng.2004.06.004>)
2. M. Basaki, M. Furukawa, K. Minami, T. Adschiri, K. Arai, *Ind. Eng. Chem. Res.* **41** (2002) 6642 (<http://dx.doi.org/10.1021/ie020326b>)
3. B. M. Kabyemela, M. Takigawa, T. Adschiri, R. M. Malaluan, K. Arai, *Ind. Eng. Chem. Res.* **37** (1998) 357 (<http://dx.doi.org/10.1021/ie9704408>)
4. H. Rasmussen, H. R. Sørensen, A. S. Meyer, *Carbohydr. Res.* **385** (2014) 45 (<http://dx.doi.org/10.1016/j.carres.2013.08.029>)
5. Y. Kanie, K. Akiyama, M. Iwamoto, *Catal. Today* **178** (2011) 58 (<http://dx.doi.org/10.1016/j.cattod.2011.07.031>).