



(51) International Patent Classification:

A23L 1/236 (2006.01) C07G 3/00 (2006.01)
B01J 23/72 (2006.01)

(21) International Application Number:

PCT/US2014/033580

(22) International Filing Date:

10 April 2014 (10.04.2014)

(25) Filing Language:

English

(26) Publication Language:

English

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AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, — with international search report (Art. 21(3))

(54) Title: SYNTHESIS OF REDUCED SUGAR ALCOHOLS, FURAN DERIVATIVES

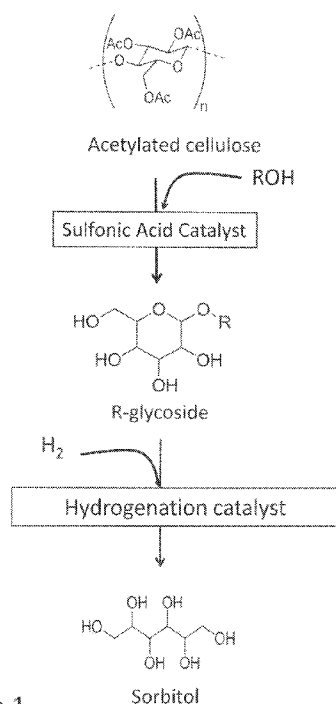


Figure 1

(57) Abstract: Disclosed herein are methods for synthesizing 1,2,5,6-hexanetetrol (HTO), 1,6 hexanediol (HDO) and other reduced polyols from C5 and C6 sugar alcohols or R glycosides. The methods include contacting the sugar alcohol or R-glycoside with a copper catalyst, most desirably a Raney copper catalyst with hydrogen for a time, temperature and pressure sufficient to form reduced polyols having 2 to 3 fewer hydroxy groups than the starting material. When the starting compound is a C6 sugar alcohol such as sorbitol or R-glycoside of a C6 sugar such as methyl glucoside, the predominant product is HTO. The same catalyst can be used to further reduce the HTO to HDO.