A new chemical synthesis of Ascopyrone P from 1,5-anhydro-D-fructose

A new chemical synthesis of Ascopyrone P from 1,5-anhydro-D-fructose
The naturally occurring antioxidant Ascopyrone P (1,5-anhydro-4-deoxy-D-glycero-hex-1-en-3-ulose, 1) was prepared from the rare sugar 1,5-anhydro-D-fructose (AF, 3) in three steps in an overall yield of 36%. Thus, acetylation of 3 afforded the enolone 3,6-di-O-acetyl-1,5-anhydro-4-deoxy-D-glycero-hex-3-en-2-ulopyranose (4), which could be isomerised to 2,6-di-O-acetyl-1,5-anhydro-4-deoxy-D-glycero-hex-1-ene-3-ulose (6). Deacetylation of 6 under mild conditions gave crystalline Ascopyrone P (1).

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