

CHAPTER OVERVIEW

7: Unprotected Carbohydrates

Radical reactions of unprotected carbohydrates begin with hydrogen-atom abstraction from a carbon–hydrogen bond in the carbohydrate structure. Such reaction requires a radical more reactive than the tin- or silicon-centered ones that are common in reactions of carbohydrate derivatives. A hydrogen atom usually is abstracted from an unprotected carbohydrate by a hydroxyl radical ($\text{HO}\cdot$), but sometimes the sulfate radical anion ($\text{SO}_4^{\cdot-}$) is the abstracting agent. A beginning point for discussing radical reactions of unprotected carbohydrates is to examine how the abstracting radicals $\text{HO}\cdot$ and $\text{SO}_4^{\cdot-}$ are formed.

Topic hierarchy

- II. Radicals That Abstract Hydrogen Atoms from Unprotected Carbohydrates
- III. First Formed Radicals: Radicals Produced by Hydrogen-Atom Abstraction from Unprotected Carbohydrates
- IV. Reactions of First-Formed Radicals
- V. Reactions of Carbonyl-Conjugated Radicals
- VI. Oxidative Degradation of Carbohydrates
- VII. Reactions of Polysaccharides
- VIII. Summary

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