III. First Formed Radicals: Radicals Produced by Hydrogen-Atom Abstraction from Unprotected Carbohydrates

A hydroxyl radical is sufficiently reactive to abstract a hydrogen atom from any of the carbon atoms in an unprotected carbohydrate.[3,6] The radicals produced by such a reaction often are referred to as “first-formed” radicals, a terminology that correctly implies further transformation is likely.[6] The ESR spectrum produced by the mixture of radicals generated from reaction of even a simple sugar with hydroxyl radicals is understandably complex; nevertheless, in the reaction of D-glucose (the most heavily studied of the simple sugars) signals for all six of the first-formed radicals can be detected.

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