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Synthesis and Dental Aspects of Acrylic Phosphonic Acids

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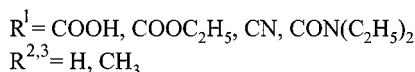
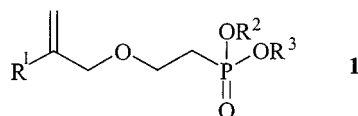
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SYNTHESIS AND DENTAL ASPECTS OF ACRYLIC PHOSPHONIC ACIDS

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Phosphoric acid esters of 2-hydroxyethyl methacrylate are favorable as components of dentin adhesives because they are able to remove the smear layer on dentin and achieve a strong bond between the restorative material and the tooth substance. However, one disadvantage of these polymerizable phosphoric acids is their low hydrolytic stability. This problem should be overcome with monomers **1** ($R^{2,3} = H$) containing more hydrolytically stable bonds between the polymerizable methacrylic group and the strong acidic phosphorus group.



SCHEME 1

This article describes the synthesis, characterization, and radical polymerization of the new acrylic phosphonic acid monomers **1**. In addition, the adhesive properties of the monomers ($R^{2,3} = H$) are discussed.

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