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Stability of Benzoyl Peroxide in Methyl Alcohol

Toshio HONGO[1)], Sakari HIKAGE[2)] and Atsushige SATO[3)]

1) Department of Hard Tissue Engineering, Division of Bio-Matrix, Graduate School, Tokyo Medical and Dental University
2) Department of Fixed Prosthodontics, School of Dentistry, Health Sciences University of Hokkaido
3) Department of Oral Biomaterials and Technology, Showa University School of Dentistry

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Abstract:
The purpose of this study was to clarify the stability of benzoyl peroxide (BPO) in some solvents. BPO was dissolved in acetone, acetonitrile (AcCN) , 50% acetonitrile-50% distilled water (50% AcCN) , ethyl alcohol (EtOH) , and methyl alcohol (MeOH) . Solutions containing BPO were incubated for eight days at 25°C. In MeOH, BPO rapidly decomposed into benzoic acid (BA) and methyl benzoate (MeBA) time-dependently, whereas BPO in acetone, AcCN, and 50% AcCN was relatively stable. Although BPO in EtOH was slightly stable within the first 24 hours, it decomposed time-dependently such that BA and EtBA as decomposition products of BPO were produced. These results indicated that the stability of BPO in a solution was dependent on the solvent and the decomposition rate of BPO dissolved in MeOH was the fastest. These suggest that BPO can decompose even in lower-than-activation temperature by the solvent to use for its dissolution.

Key words:
Benzoyl peroxide, Stability, HPLC

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