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[\[PDF \(394K\)\]](#) [\[References\]](#)**New Index for the Stability of a Type I Collagen Affected by Hydrophobic Environment**[Takashi NEZU](#)¹⁾, [Tomohiro MORIKAWA](#)²⁾, [Kaori SASAKI](#)¹⁾, [Setsuo SAITOH](#)¹⁾, [Masayuki TAIRA](#)¹⁾, [Yoshihiro TERADA](#)²⁾ and [Yoshima ARAKI](#)¹⁾

1) Dental Biomaterials and Technology, Iwate Medical University School of Dentistry

2) Fixed Prosthodontics, Division of Oral Rehabilitation, Faculty of Dental Science, Kyushu University

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Abstract:

Effects of hydrophobic environment adjusted by various alcohols on the structural stability of calfskin collagen (CSC) were studied to elucidate the nature of collagen-monomer interaction in adhesion. The stability of CSC in aqueous alcohol solutions was represented by its denaturation temperature, T_d , measured by DSC. The hydrophobicity of the alcohol solutions was quantified with their specific dielectric constants, ϵ_r , calculated from their concentrations. The effect of each alcohol to stabilize or destabilize CSC was evaluated by the initial slope of each T_d vs. ϵ_r plot, denoted as $-(dT_d/d\epsilon_r)_{ini}$ and termed as stabilization power. Results showed that a hydrophobic environment with a smaller ϵ_r lowered the stabilization power. Stabilization power ranged from -3 (strong destabilization) for phenol ($\epsilon_r=12$) to +0.3 (weak stabilization) for glycerol ($\epsilon_r=47$). In view of the encouraging results obtained in this study, the new index was therefore helpful in predicting the effects of new dental materials of known ϵ_r values on the stability of dentinal collagen.

Key words:[Collagen](#), [Stability](#), [Hydrophobicity](#)

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