Oral Antimicrobial Effect Using Eco-Friendly Substances

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Purpose 1. The first purpose of this research is to know the applicability of the tannin and catechin which are antibiotic to S.mutans and to know their effect to oral cells. 2. The second purpose of this research is to make molecular cuisine and to know the optimal concentration of sodium alginate by performing viscosity experiment. Procedure 1. Paper disc experiment We cultivated S.mutans and observd the antimicrobial effect of tannin and catechin by paper disc experiment. 2. MTT assay & RT-PCR We performed MTT assay and RT-PCR to know the effect to the oral cells. 3. 3D printed tooth model experiment We made 3D printed teeth model and observed the antimicrobial effect of wine which contains tannin. 4. Molecular cuisine experiment We observed the effect of molecular cuisine(sodium alginate jellys) in different viscosity and measured spectral absorbance. Result The S.mutans didn’t propagate around paper discs covered with tannin and catechin. We observed the different form of S.mutans around the paper discs covered with tannin and catechin. Also, we observed the antimicrobial effect of red wine. Conclusion Through many experiments, we proved the antimicrobial effect of tannin and catechin and found the optimal concentration of them. We made molecular cuisine and they have antimicrobial effect less than law tannin acid. We found that optimal amount of sodium alginate for molecular cuisine is less than 0.2g. In different viscosity of molecular cuisine, we found that the higher viscosity makes anaerobic condition for S.mutans to propagate well. Therefore, it leads to the growth of S.mutans although tannin acid has an antimicrobial effect.

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