

Effect of coffee on the compositional shift of oral indigenous microbiota in in vitro cultivation

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<https://hdl.handle.net/2324/2236146>

出版情報 : Kyushu University, 2018, 博士 (歯学) , 課程博士
バージョン :
権利関係 :



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論 文 名 : Effect of coffee on the compositional shift of oral
indigenous microbiota in *in vitro* cultivation
(*in vitro*培養において、コーヒーが口腔常在細菌叢の構成変化に与える影響)

区 分 : 甲

論 文 内 容 の 要 旨

Coffee brew is a widely consumed beverage containing organic compounds with antibacterial activity. To investigate its possible effect on the growth of oral indigenous microbiota, saliva samples collected from nine young adults were inoculated into brain heart infusion (BHI) medium with or without addition of coffee compounds and cultured at 37° C in 5% CO₂ for 12 hours. The total bacterial density and composition after cultivation for 0, 6, and 12 hours were determined by a quantitative PCR analysis and a 16S rRNA gene sequencing approach, respectively. The increase in total bacterial load was significantly inhibited by the addition of coffee compounds. The microbiota was mostly composed of *Streptococcus* species after the cultivation in BHI medium regardless of the addition of coffee compounds. *Streptococcus salivarius* showed a significantly lower proportion after the addition of coffee compared to that in the medium alone. Alternatively, *Streptococcus mitis* and *Streptococcus infantis* showed increased dominance by the addition of coffee compounds. These results suggest that coffee exposure affects the composition of oral *Streptococcus* population, in addition to the inhibition of total salivary bacterial growth. Considering the results of a series of earlier epidemiological studies, it is possible that coffee consumption contributes to better health conditions.