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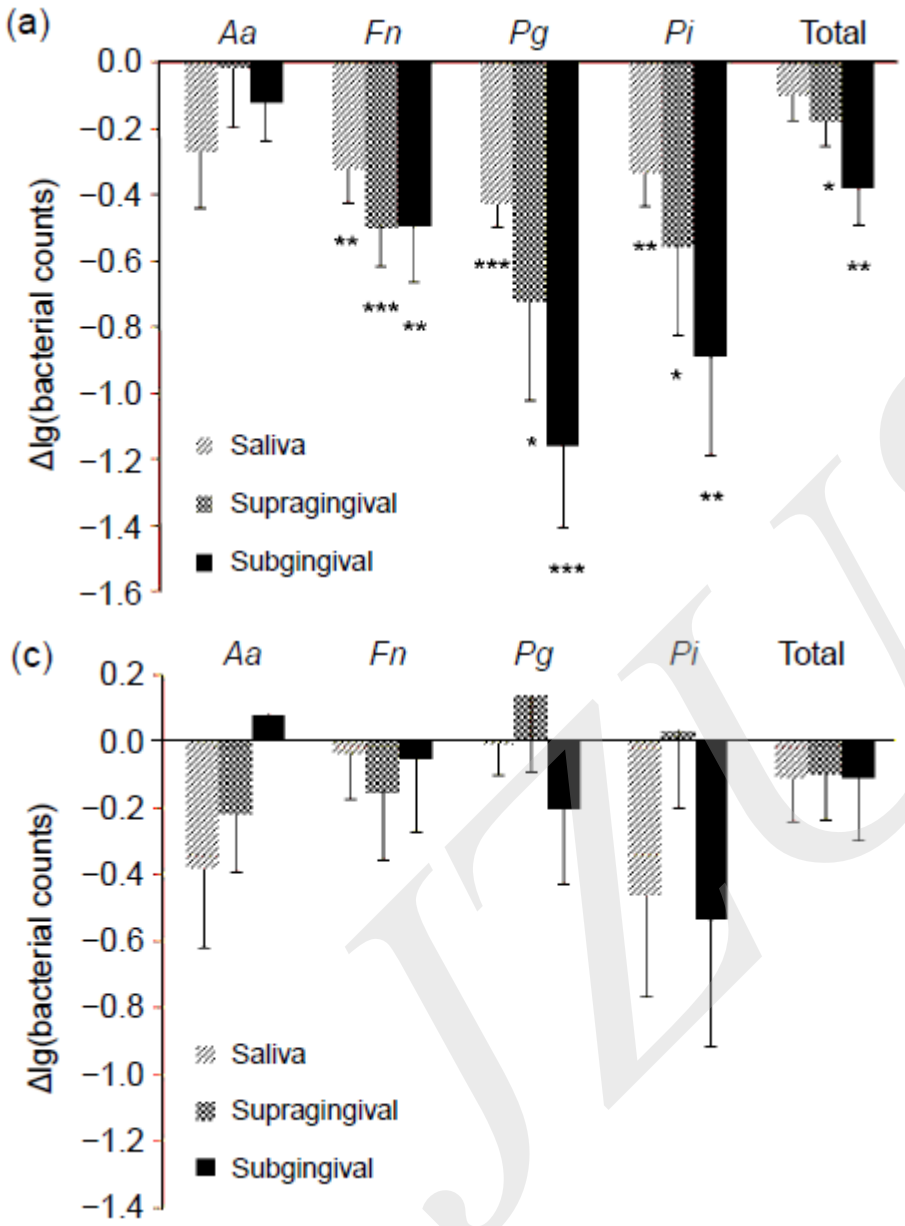
Short-term microbiological effects of scaling and root planing and essential-oils mouthwash in Chinese adults

洁治术、龈下刮治术和漱口液对成人口腔细菌作用的短期评价

Key words: Oral microbiota, Chronic periodontitis, Scaling and root planing, mouthwash, Quantitative detection, Real-time PCR

关键词： 口腔细菌；慢性牙周炎；牙龈上洁治术、龈下刮治术；漱口液；实时定量荧光PCR

- The initiation and progression of chronic periodontitis (CP) are the result of oral bacteria and the host immune response. *Aggregatibacter actinomycetemcomitans* (*Aa*), *Fusobacterium nucleatum* (*Fn*), *Porphyromonas gingivalis* (*Pg*), and *Prevotella intermedia* (*Pi*) are closely associated with periodontal diseases.
- Anti-infective nonsurgical therapy includes both scaling and root planing (SRP) and chemotherapeutic approaches such as essential-oils mouthwash. Although beneficial effects of SRP and essential-oils on plaque control and clinical assessment have been reported, few studies have assessed their microbiological effect before and after treatment. Moreover, very little data are available in the literature on the microbiological outcome after non-surgical periodontal therapy in the Chinese population.
- The aim of this study was to assess the short-term effect of SRP and essential-oils mouthwash on the levels of those bacteria.
- Fifty Chinese adults with chronic periodontitis were randomly assigned to full-mouth SRP or a 7-d essential-oils mouthwash regimen. In addition, 22 periodontally healthy adults used essential-oils mouthwash for 7 d. Clinical examination and plaque/saliva sampling were performed at baseline and on Day 7.
- Quantitative real-time polymerase chain reaction (PCR) was used to assess the detection frequencies and bacterial loads of *Aa*, *Fn*, *Pg*, *Pi*, and total bacterial loads in saliva, supra- and sub-gingival plaque samples.



Mean change in number of log_{10} transformed bacterial counts between baseline and 7 d post-treatment

(a) SRP in CP patients;
(b) Essential-oils mouthwash in CP patients;
(c) Essential-oils mouthwash in periodontally healthy subjects

* $p<0.05$, ** $p<0.01$, *** $p<0.001$ between baseline and 7 d post-treatment

- In conclusion, SRP significantly reduced the bacterial loads of *Fn*, *Pg*, *Pi*, and total bacteria in saliva, supra- and sub-gingival plaque in patients with CP during a short 7-d follow-up.

- Essential-oils mouthwash significantly reduced the levels of *Fn* and total bacteria in the CP patients.

- No significant bacterial reduction were observed in periodontally healthy participants using essential-oils mouthwash.

- Overall, SRP and essential-oils mouthwash both have an impact on saliva and gingival plaque flora in Chinese periodontitis patients in 7 d, with greater microbiological improvement by SRP.

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