was to evaluate in vitro the inhibitory activity of CsinCPI-2 on the gene expression of cathepsins (B and K) and cytokines (tumor necrosis factor alpha and interleukin-1β) in murine macrophage cells (RAW 264.7) stimulated with heat-inactivated bacteria Porphyromonas gingivalis (P.g). In addition, the inhibitory activity of CsinCPI-2 in bone resorption was evaluated in vivo in experimental periodontitis in mice.

**Methods:** In vitro experiment: after cell cytotoxicity and dose/time-response experiments, RAW 264.7 cells were treated with different concentrations of CsinCPI-2 and stimulated by P.g.10⁷ for 12 and 24 h to evaluate the inhibitory action of cytokines on the expression of cathepsins and cytokines during bacterial infection, analyzed by qPCR. In vivo experiment: 32 male Swiss mice, distributed into 4 experimental groups (n = 8) were sacrificed 15 days after the induction of periodontal disease. Group 1: negative control group; groups 2, 3, and 4: animals subjected to ligature-induced periodontal disease and daily intraperitoneal injection of PBS, CsinCPI-2 of 0.8 μg/μl, and 1.6 μg/μl, respectively. The alveolar bone loss was measured by micro-computed tomography (μCT).

**Results:** The dose/time-response tests showed that P.g.10⁷ was the most efficient (p < 0.05) concentration in inducing an inflammatory effect in RAW cells, increasing cathepsins and cytokines gene expressions. CsinCPI-2 showed a significant (p < 0.05) inhibition on the expression of cathepsins and cytokines in RAW cells. In the in vivo study the μCT showed that the group 3 presented a significant (p < 0.05) reduction of bone loss compared to the other groups.

**Conclusion:** It can be suggested that CsinCPI-2 has an anti-inflammatory effect as it decreased the expression of cathepsins and cytokines. It also has the potential to reduce bone loss in induced periodontitis model. Thus, it may be evaluated in future studies as an adjunctive treatment option in periodontitis.

### PD162

**Antimicrobial effects of pulsed electromagnetic field: in-vitro polymicrobial periodontal subgingival biofilm model**

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**Background & Aim:** Periodontitis is an infectious disease that causes the inflammatory destruction of the tooth-supporting tissues. It is caused by polymicrobial biofilm communities growing on the tooth surface. Treatment includes primarily mechanical disruption of subgingival biofilms and may include adjunctive systemic antibiotic therapy. The aim of this in vitro study was to evaluate the antibacterial effects of pulsed electromagnetic field (PEMF), a device that may be incorporated to healing abutments, using a unique polymicrobial subgingival biofilm model.

**Methods:** Healing abutments with (test group) and without (control group) active PEMF devices were placed in a multispecies biofilm with 31 different periodontal microorganisms. The composition of the biofilm as well as the bacterial total counts (x10⁶) were analyzed by checkerboard DNA-DNA hybridization after 96 h.

**Results:** After 96 h, the mean levels and proportions of 4 out of the 31 bacterial species evaluated were lower in the test group when compared to the control group (without PEMF) (p < 0.05): Actinomyces odontolyticus; Fusobacterium nucleatum sp polymorphum, Campylobacter showae and Capnocytophaga gingivalis. The total microbial count was not influenced by PEMF (p > 0.05).

**Conclusion:** This preliminary in vitro data suggests that PEMF exerts antimicrobial effects on a few subgingival species after 96 h of exposure. Further evaluation of the PEMF effects on this multispecies biofilm model at different time intervals may provide more insights into the underlying antimicrobial mechanisms.

### PD163

**Histopathological and Biochemical Evaluation of Paeoniflorin’s Effect on Periodontium During and After Periodontitis Formation**

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**Background & Aim:** Paeoniflorin (Pae), a monoterpene glycoside, has been used as a herbal drug especially in Chinese medicine for many years. The purpose of this study is to appraise the effect of systemic Pae application on periodontium during and after induction of experimental periodontitis in the presence or absence of microbial dental biofilm by histomorphometric and biochemical analyses.

**Methods:** Seventy Wistar rats were separated into 7 groups, with the first group reserved as control. Experimental periodontitis was induced in the remaining 60 rats. The second group was administered Pae through gavage for the first 7 days. The third group acted as the control periodontitis group and received no treatment. During 7 days after experimental periodontitis induction (with or without biofilm), Pae was administered to the fourth and sixth groups, and saline was administered to the fifth and seventh groups. The saline groups were used as controls for the Pae groups. Matrix metalloproteinases-9 (MMP-9) levels and Interleukin-10 (IL-10) levels were detected biochemically and histomorphometric analyses were performed.

**Results:** It was detected that the beneficial effects of Pae were the strongest in the group that was administered Pae in the absence of microbial dental biofilm. In Pae-administered groups, the alveolar bone area, the IL-10 levels were higher, while the alveolar bone levels, attachment loss, and MMP-9 levels were lower (p < 0.05).

**Conclusion:** As a result of histomorphometric and biochemical analysis, it is shown that systemically administered Pae have positive effect on healing of periodontal tissues.

### PD164

**The Anti-inflammatory effect of a gut microbial metabolite (10-oxo-trans-11-octadecenoic acid) on macrophages stimulated with Porphyromonas gingivalis lipopolysaccharide**

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**Background & Aim:** A bioactive fatty acid, 10-oxo-trans-11-octadecenoic acid (KetoC), derived from linoleic acid by

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