

Glycine

And its applications in Dental Medicine



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Introduction: Glycine, a simple amino acid ($C_2H_5NO_2$), has a relevant presence in the extracellular structure of collagen and elastin, being discovered and isolated for the first time by the French chemist H. Bracannot. It can be synthesized by a variety of processes, according to its purpose in the organism and, despite the reduced knowledge regarding its mechanisms and action, glycine presents itself as a potential anti-inflammatory, immune system regulator and antioxidant, as well as being vital for the synthesis of cytokines and neurological functions. Due to its physical properties, such as a reduced abrasiveness and superficial damage of its particles, the glycine powder proves to be a suitable substitute of sodium bicarbonate in dental medicine treatments.

Objetives: Present the different applications of glycine powder in Dental Medicine.

Material and Methods: The bibliographic search was made between January and May of 2019, on the data bases Pubmed (with the key words: dentistry AND glycine powder; dentistry AND enamel and dentine AND glycine powder), Researchgate (key words dentistry AND glycine powder AND adhesive system) e Ebscohost (key words air-polishing enamel and dentine AND glycine powder; air polishing AND glycine powder AND size particles). Articles were also found on GoogleScholar (key words dentistry AND adhesive system AND glycine powder).

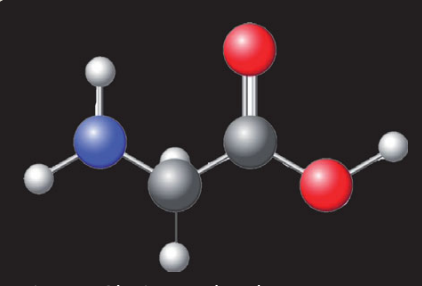
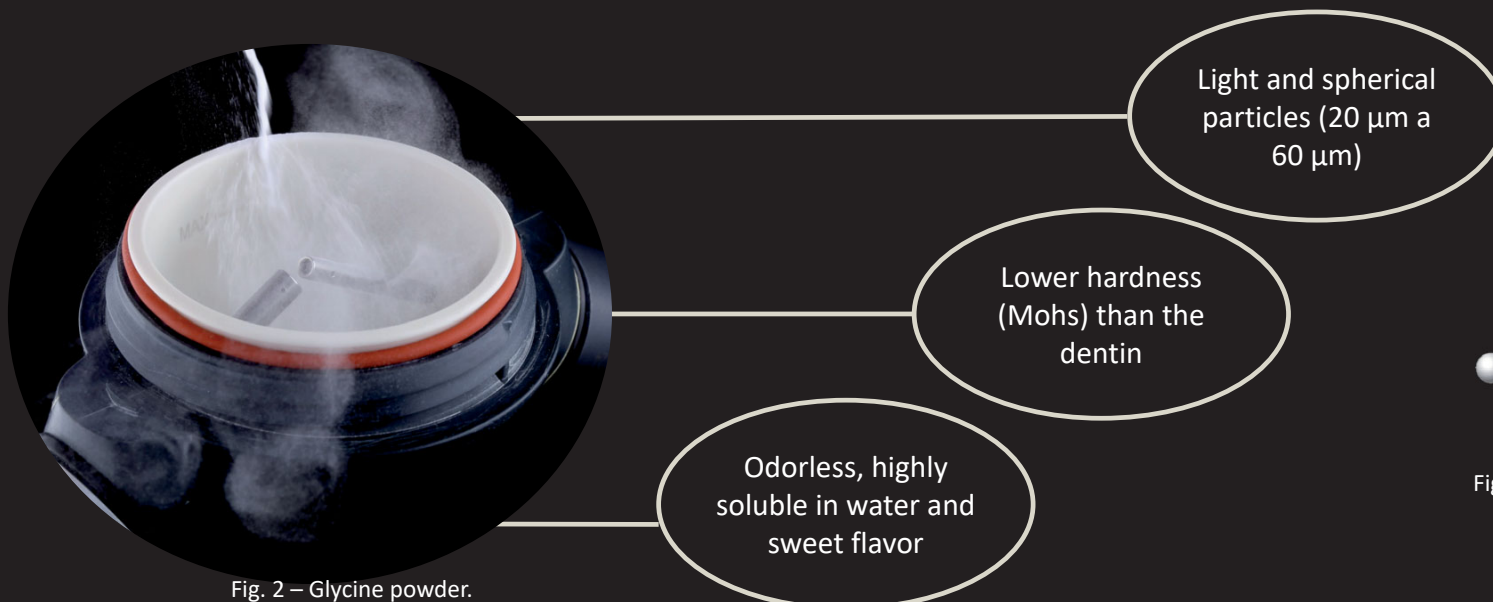


Fig. 1 – Glycine molecular structure.

Fig. 2 – Glycine powder.

Periodontal Therapy 9, 11-13, 15-21

Maintenance of the balance between the microbiologic action and the changes in the immune response of the host.

- ↳ Glycine allows a minor abrasion and deterioration of the root and gingival surface. Removal of extrinsic stains and supra and subgingival bacterial biofilms (periodontal pockets between 3 and 5 mm). Efficient as therapy support but not at early stages of the periodontal disease.



Fig. 3 – Glycine application.

Peri-implantite 22-26

Required a control of the inflammation in the gingival tissue and restoration of osseointegration around the implant.

- ↳ There is an increase of the surface roughness and the depth of the periodontal pocket through co-aggregations and maturation of the bacterial microflora.
- ↳ Glycine promotes a reduction of the periodontal pocket, as well of the bleeding and microbial adherence.



Fig. 4 – Glycine can be used on the implant surface.



Fig. 5 – Glycine application on the surface.

Surface Roughness 8-10, 27-30

Defects of different dental structures and restorative material, or damage of these structures, leads to discoloration, biofilm accumulation and gingival irritation.

- ↳ Studies compared the application of glycine versus mechanical polishing instruments.
- ↳ Glycine obtained clinical efficacy in the polishing and removal of discolorations, with a lower abrasive effect.



Fig. 6 – Acid etching e glycine.

Adhesion 31-34

Glycine introduced as pretreatment of the dentine surface.

- ↳ Studies have shown no significant differences between glycine application and etching.

Conclusion: Aiming to improve the efficacy of treatments in the different areas of dental medicine, as well as simplifying their action and mitigate consequences, studies have been comparing the application of glycine in the most diverse protocols. Presenting effectiveness in reducing bacterial plaque along with milder polishing with less abrasiveness, glycine is nowadays seen as an innovative substance in the world of dentistry. If the clinical parameters of application are obeyed, the use of this amino acid proves to be as or more effective than the conventional protocols.