

Int Poster J Dent Oral Med 2010, Vol 12 No 4, Poster 507

Plasma Bleaching "Having a Whiter Future"

Language: English

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Date/Event/Venue:

May 27th-29th, 2010.
XI FODI & IES Post Graduate Convention
Bangalore

Poster Award

Best Poster Presentation

What is Plasma???

Plasma is a distinct phase of matter, separate from traditional solids, liquids and gases. It is a collection of charged particles that respond strongly to electromagnetic fields, taking the form of gas-like clouds and ion beams. Since the particles in plasma are electrically charged (generally by being stripped of electrons), it is frequently described as "Ionized Gas". Plasma was first identified (as "Radiant Matter") by Sir William Crookes in 1879. It was Irving Langmuir who assigned the term "Plasma".

Potential Complications of Bleaching with Hydrogen Peroxide + Heat



Fig. 1 and 2: External cervical resorption

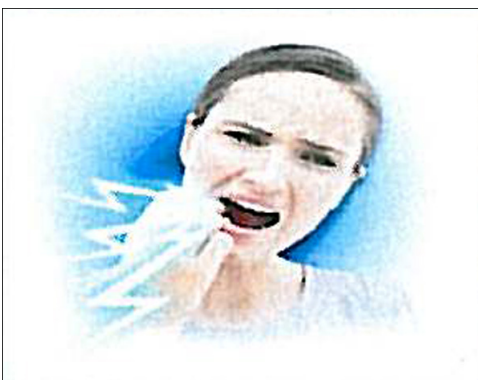


Fig. 3: Tooth hypersensitivity

Fig. 4: Enamel erosion

There are due to high temperature used during bleaching and increased concentration of H_2O_2 , which can be avoided using the novel technique of Plasma Bleaching.

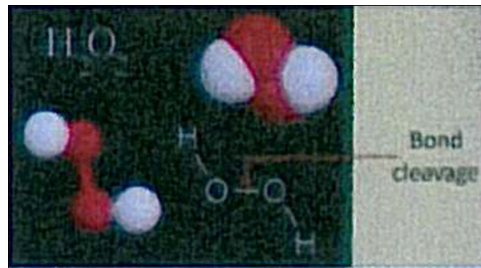
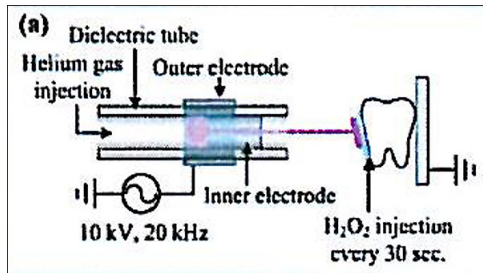


Fig. 5: Production of plasma

Fig. 6: Mechanism of plasma action



Fig. 7 and 8: Chairside plasma device

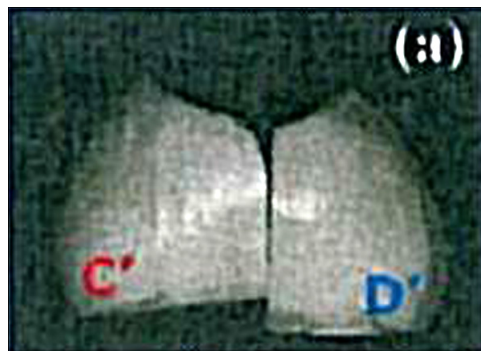


Fig. 9: Application of plasma jet (in vitro)

Fig. 10: Before

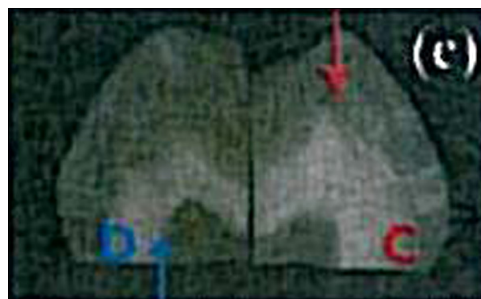


Fig. 11 and 12: C: H_2O_2 + plasma (10 min.); D: H_2O_2 alone (10 min.)

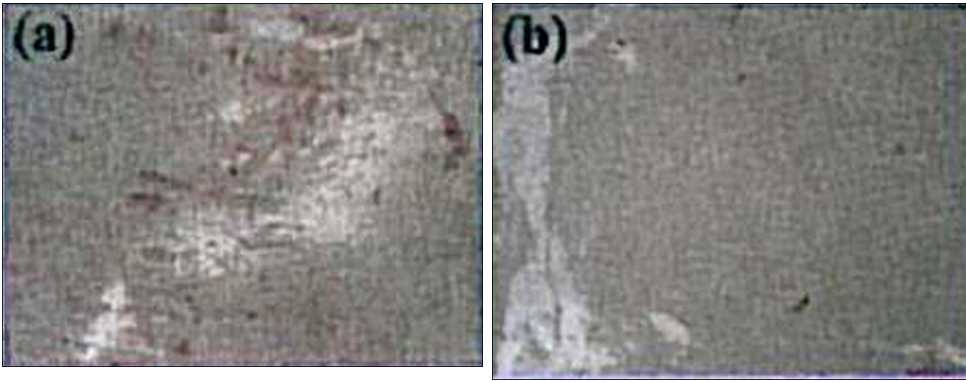


Fig. 13: Ponceau staining (protein removal): H_2O_2 alone Fig. 14: Ponceau staining (protein removal): H_2O_2 + plasma

Advantages of Plasma Bleaching

1. Lesser amount of heat production (around $38^\circ C$)
2. Increased amount of OH ions (twice than with H_2O_2 alone), so better results
3. Reduction in tooth surface proteins (measured by Ponceau Staining)

So, Plasma Bleaching is a more effective and saver method of tooth bleaching, making its way for the future.

This Poster was submitted by [Dr. Ravi Sood](#).

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PLASMA BLEACHING

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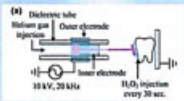
POTENTIAL COMPLICATIONS OF BLEACHING WITH HYDROGEN PEROXIDE + HEAT



External Cervical Resorption Tooth Hypersensitivity Enamel Erosion
 These are due to high temperature used during bleaching and increased concentration of H_2O_2 , which can be avoided using the novel technique of

PLASMA BLEACHING.

Production Of Plasma



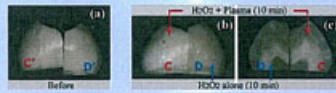
Mechanism Of Plasma Action



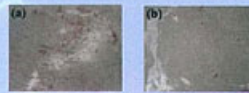
ChairSide Plasma Device



Appication Of Plasma Jet (IN-VITRO)



Ponceau Staining (Protein Removal)



H_2O_2 Alone H_2O_2 + Plasma

ADVANTAGES OF PLASMA BLEACHING:

1. Lesser amount of heat production (around $38^\circ C$).
2. Increased Amount Of OH ions (Twice than with H_2O_2 Alone). So better results.
3. Reduction in tooth Surface Proteins (Measured by Ponceau Staining).

So, Plasma Bleaching Is a More Effective And Safer Methods Of Tooth Bleaching, Making Its Way For the Future.