

Tooth and denture cleaning without additional chemicals

terrapiasma receives U.S. patent for Plasma Activated Water (PAW)

Garching near Munich, June 27, 2023 - U.S. patent granted to terrapiasma, the innovation leader in the development and implementation of cold atmospheric plasma (cold plasma for short) applications. The United States Trademark and Patent Office (USTPO) granted a patent under the number US 11,628,050B2 for the "Apparatus and method for treating objects, in particular teeth and dentures". The invention relates in detail to a device and method for treating, in particular cleaning objects (in particular dental objects and/or teeth) with so-called "Plasma Activated Water (PAW)".

This Plasma Activated Water (so named because of the scientifically detectable, short-lived reactive plasma species such as nitrogen and oxygen compounds) allows objects to be disinfected easily, safely and without the use of additional chemicals. The handling of the terrapiasmaWater prototype is very simple: the compact device is filled with normal tap water. After pressing the button, the air plasma generated in the device is blown into the water for one minute, creating Plasma Activated Water (PAW), which retains its effect for a few minutes and then returns to normal (disinfected) tap water. In this way, objects (such as braces or dentures) can be cleaned in the device itself or the Plasma Activated Water can be used as a sustainable mouth rinse. In addition to deactivating microorganisms, this mouth rinse also provides - when used several times - a gentle whitening effect of the teeth.

Oral hygiene without additional chemicals

Thanks to the mouthwash with PAW, a similar cleaning effect can be achieved as with conventional mouthwashes - but completely without the use of additional chemicals. The negative environmental impact of classically produced mouthwashes cannot be ignored: first, the chemicals for mouthwashes must be produced, stored, filled and finally transported to the point of sale in an energy-intensive process. After use, they end up in rivers or sewage treatment plants, where they disrupt the important interaction of many bacterial species, reducing the cleaning effect (in clarifiers or water bodies, for example).

Cold plasma is the future of disinfection

The application of cold plasma (or low-temperature plasma) is a novel technology for disinfection that can kill even antibiotic-resistant microorganisms at room temperature in a time-saving manner, not only on surfaces but also in water and even through clothing. This makes Cold Plasma suitable for disinfection of air, surfaces, objects, hand disinfection, but also for treatment of poorly healing chronic wounds. Cold plasma offers a large variety of different applications, which terrapiasma is currently researching and implementing together with its partners.

About terrapiasma

The terrapiasma GmbH (<https://www.terrapiasma.com>), founded in 2011 as a spin-off of the Max Planck Society and based in Garching near Munich, offers innovative solutions for the development of cold plasma products in areas where germs are undesirable, odors or harmful molecules cause problems. Cold plasmas are partially ionized gases that inactivate bacteria, fungi, viruses, spores and odor molecules very efficiently. With different basic technologies, terrapiasma cooperates with well-known companies in the fields of medical technology, hygiene, water treatment, odor management, air purification and surface modification. As a partner of industry, terrapiasma's goal is to develop and market needs-based cold plasma solutions together with its partners. A young team that works with a great deal of creativity and sophistication, many years of extensive know-how in the field of cold plasma technology and numerous patents from a wide variety of areas support the company on its road to success.

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Press pictures



Oral hygiene without additional chemicals: prototype of terrapiasmaWater for cleaning the oral cavity and dentures, and for gentle teeth whitening.



Now also in the U.S.A.: Cover sheet of patent grant US 11,628,050B2 for "Apparatus and method for treating articles, in particular teeth and dentures".