

NANOPARTICULATE TITANIUM DIOXIDE NANOMATERIAL MODIFIED WITH
FUNCTIONAL GROUPS AND WITH CITRIC EXTRACTS ADSORBED ON THE
SURFACE, FOR THE REMOVAL OF A WIDE RANGE OF MICROORGANISMS

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ABSTRACT

The present invention relates to the conjugate
of a titanium dioxide nanomaterial and nanoparticulate
(1-100 nm) herbal and/or fruit extracts, synthesized by
10 means of impregnation, using titanium dioxide as
support, to which are adsorbed organic functional
groups, inorganic radicals and plant extracts that
confer thereon the property of being an anti-microbial
agent with a high disinfectant and antiseptic power,
15 removing bacteria, fungi, mycobacteria, spores,
mycobacteria, protozoa and viruses.

This invention is a solid nanomaterial in liquid
suspension. Said material is prepared by means of
impregnation to disperse the functional groups and the
20 extract particles, with control of the temperature to
stabilize the interactions within the network of the
support.

The virucidal, bactericidal, fungicidal,
mycobactericidal, mycoplasmicidal, antiprotozoal and
25 sporicidal activity of the nanoparticulate biomaterial

depends on the particle size of the support oxide, the functionalization and the dispersion of extracts adsorbed on the surface. The functional groups may include hydroxyl, carboxyl, amine, sulfate, phosphate, and the supports may
5 be titanium dioxide, silica, zirconia, zinc oxide, alumina and other metal oxides, without being restricted to these functional groups, extracts or supports.

No suitable figure