[0072] (1) Action due to lowering of the pH through dissociation of the organic acid. R—COOH+H_2O→R—COO^-+H_3O^+.

[0073] Reason: Each microorganism has its cardinal conditions; if there is a change to these—for example the pH—the growth rate decreases (up to inhibition).

[0074] (2) Action due to attachment of the acid anion to the cell membrane of the microorganism. R—COO^-→cell wall/phospholipid membrane.

[0075] Reason: Disruption of cell proliferation and equilibrium concentration between intracellular and extracellular space. According to one assumption, the long-chain fatty-acid anions are positioned between the phospholipid molecules and are, from a certain concentration, statistically sufficiently close to one another for them, owing to their COO^- groups, to push apart the membrane molecules and to thus effectively contribute to the perforation of the cell membrane.

[0076] (3) Intracellular action: The undissociated acid (R—COOH) can, owing to an absent hydration shell, pass through the cell wall of a microorganism more easily than the corresponding anion. In the interior of the organism, a relatively high pH prevails, resulting in the acid activity being released—comparable to (1)—and this leads to the denaturation of important proteins and further unspecific reactions within the organism.

[0077] (4) Some aromatic carboxylic acids can act as depolarizers via their redox potential, by, for example, being able to inhibit ion channels of the cells and to thus lead to a charge reversal.

[0078] During the preparation of the concentrates according to the invention, a further unexpected effect was found. In the presence of a relatively strong acid, sodium benzoate does not exhibit any solubility in an aqueous, glycol-containing solution. It is found that, surprisingly, sodium benzoate in the presence of relatively weak acids can, even in the presence of a relatively strong acid and low pH values, be dissolved without any problems to form a colorless and clear composition. This is surprising, since the presence of a relatively strong acid leads to a protonation of the benzoate, resulting in the presence of the poorly water-soluble benzoic acid. The presence of at least one relatively weak acid is sufficient for bringing sodium benzoate into a stable, aqueous, colorless solution.

[0079] In a preferred embodiment, the application solution consists of

[0080] a) 0.45-10% by weight of at least one organic acid selected from acetic acid, propionic acid or a combination of these,

[0081] b) 0.1-1% by weight selected from sodium benzoate or sodium acetate or a combination of these,

[0082] c) 0-2% by weight of solubilizer selected from hexyl carbitol and propylene glycol or a combination of these and

[0083] d) water,

[0084] wherein at least 3 acids and/or the salts thereof (a) and (b) are present.

[0085] In a further preferred embodiment, the application solution consists of

[0086] a) 0.45-10% by weight of at least one organic acid selected from acetic acid, propionic acid or a combination of these,

[0087] b) 0.1-1% by weight selected from sodium benzoate or sodium acetate or a combination of these,

[0088] c) 0.1-1% by weight of lactic acid,

[0089] d) 0-2% by weight of solubilizer selected from hexyl carbitol and propylene glycol or a combination of these and

[0090] e) water,

wherein the sum of

$$\frac{(a)}{10} + (c) \text{ is } < 1.0.$$

[0091] In a preferred embodiment, the application solution consists of

[0092] a) 0.45-10% by weight of at least one organic acid selected from acetic acid, propionic acid or a combination of these,

[0093] b) 0.1-1% by weight selected from sodium benzoate or sodium acetate or a combination of these,

[0094] c) 0.1-1% by weight of tartaric acid,

[0095] d) 0-2% by weight of solubilizer selected from hexyl carbitol and propylene glycol or a combination of these and

[0096] e) water,

wherein the sum of (a)+(c) is <10.0.

[0097] In a preferred embodiment, the application solution consists of

[0098] a) 0.45-10% by weight of at least one organic acid selected from acetic acid, propionic acid or a combination of these,

[0099] b) 0.1-1% by weight selected from sodium benzoate or sodium acetate or a combination of these,

[0100] c) optionally 0.1-1% by weight of lactic acid,

[0101] d) optionally 0.1-1% by weight of tartaric acid,

[0102] e) 0-2% by weight of solubilizer selected from hexyl carbitol and propylene glycol or a combination of these and

[0103] f) water,

wherein the sum of

$$\frac{(a)}{10} + (c) + (d) \text{ is } < 1.0.$$

[0104] Preferably, the application solution of the disinfectant according to the invention contains organic acids in a concentration of 0.1-10% by weight, particularly preferably 0.3-5.0% by weight.

[0105] More particularly, the sum of propionic acid, acetic acid, lactic acid and tartaric acid in the application solution is below 10% by weight.

[0106] Particularly preferably, the organic acids in the application solution mathematically meet the following conditions (data in % by weight):

$$\frac{\text{Acetic acid and/or propionic acid}}{10} + \frac{\text{Tartaric acid} + \text{lactic acid}}{1} \leq 1.0$$

$$\frac{\text{Acetic acid and/or propionic acid}}{10} + \frac{\text{Lactic acid}}{1} \leq 1.0$$