composition is a virucidal, antibacterial or sporicidal disinfectant composition. More preferably the disinfectant composition is virucidal, antibacterial and sporicidal. The terms “virucidal”, “antibacterial” and “sporicidal” are defined herein with reference to the above-mentioned European Standards.

The disclosure provides a disinfectant composition comprising:

(a) 0.001% w/v to about 0.5% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof;

(b) 0.001% w/v to about 4% w/v of chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof; and

(c) 0.001% w/v to about 2% w/v of a dialkyldimethylammonium chloride, wherein the alkyl group has 8 or more carbon atoms, and where the composition is formulated as a single solution in an aqueous solvent.

In an aspect the disclosure provides a disinfectant composition comprising:

(i) 0.001% w/v to 0.5% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof;

(ii) 0.001% w/v to 4% w/v of chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof; and

(iii) 0.001% w/v to 2 % w/v of a dialkyldimethylammonium chloride, wherein the alkyl group has 8 or more carbon atoms, wherein the composition is formulated as a single solution in an aqueous solvent.

In various examples of the disclosure, the composition preferably comprises 0.001% w/v to about 0.2% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof, more preferably 0.01% w/v to about 0.1% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof. At such low concentrations, 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline – otherwise known as “HT61” – functions as an emollient. This is discussed and exemplified further herein. HT61 is a compound developed by the Applicant and its synthesis and characterisation are disclosed in WO 2007/054693.

In various examples of the disclosure, the composition preferably comprises 0.001% w/v to about 2% w/v chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof, more preferably 0.05% w/v to about 0.5% w/v chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof.

In various examples of the disclosure, the dialkyldimethylammonium chloride is selected from dioctyldimethylammonium chloride, octyldecyldimethylammonium chloride, and didecyldimethylammonium chloride, preferably the dialkyldimethylammonium chloride is didecyldimethylammonium chloride, otherwise known as DDAC. In various examples of the disclosure, the composition preferably comprises 0.001% w/v to about 1% w/v of didecyldimethylammonium chloride, more preferably 0.01% w/v to about 0.7% w/v of didecyldimethylammonium chloride.

In various examples of the disclosure, the formulation is biodegradeable. The term “biodegradeable” means that the disinfectant composition is capable of being decomposed by bacteria or other living organisms and thereby having minimal environmental impact.

In various examples of the disclosure the aqueous solvent is water.

In various examples of the disclosure the disinfectant composition has virucidal activity as measured by BS EN 14476. The virucidal activity of the composition may specifically be against a Picornavirus, a Poxvirus, a Coronavirus or a combination thereof, preferably the virucidal activity is against Poliovirus, a Poxvirus such as Vaccinia virus, a Coronavirus or a combination thereof. More preferably the virucidal activity as measured by BS EN 14476 is against a Coronavirus.

In various examples of the disclosure the disinfectant composition has antibacterial activity as measured by BS EN 1500. In various examples of the disclosure the disinfectant composition is a sporicidal disinfectant composition, preferably the composition has sporicidal activity as measured by BS EN 17126.

In another aspect the disclosure provides a consumer product comprising the disinfectant composition described herein. The consumer product may, for example, comprise at least one of a disinfectant spray, hand sanitizer solution or gel, antiseptic wipe, or antiseptic patch.

The disclosure provides a method of disinfecting an article or surface comprising treating said article or surface with the disinfectant composition described herein or the consumer product described herein.

In another aspect the disclosure provides a non-therapeutic method of disinfecting an article or surface comprising treating said article or surface with the disinfectant composition described herein or the consumer product described herein.

These aspects and examples are set out in the appended independent and dependent claims. It will be appreciated that features of the dependent claims may be combined with each other and with features of the independent claims in combinations other than those explicitly set out in the claims. Furthermore, the approaches described herein are not restricted to specific examples such as those set out below, but include

and contemplate any combinations of features presented herein. The foregoing and other objects, features, and advantages of the invention will appear more fully hereinafter from a consideration of the detailed description that follows.

For ease of reference, these and further aspects of the present disclosure are now discussed under appropriate section headings. However, the teachings under each section are not necessarily limited to each particular section.

CLAIMS

1. A disinfectant composition comprising:
   (i) 0.001% w/v to 0.5% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof;
   (ii) 0.001% w/v to 4% w/v of chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof; and
   (iii) 0.001% w/v to 2 % w/v of a dialkyldimethylammonium chloride, wherein the alkyl group has 8 or more carbon atoms,
   wherein the composition is formulated as a single solution in an aqueous solvent.

2. The disinfectant composition of claim 1, wherein the composition comprises 0.001% w/v to 0.2% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof.

3. The disinfectant composition of claim 1 or claim 2, wherein the composition comprises 0.01% w/v to 0.1% w/v of 4-methyl-8-phenoxy-1-(2-phenylethyl)-2,3-dihydro-1H-pyrrolo[3,2-c]quinoline or a pharmaceutically acceptable salt and/or solvate thereof.

4. The disinfectant composition of any one of claims 1 to 3, wherein the composition comprises 0.001% w/v to 2% w/v chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof.

5. The disinfectant composition of any one of claims 1 to 4, wherein the composition comprises 0.05% w/v to 0.5% w/v chlorhexidine or a pharmaceutically acceptable salt and/or solvate thereof.

6. The disinfectant composition of any one of claims 1 to 5, wherein the dialkyldimethylammonium chloride is selected from dioctyldimethylammonium chloride, octyldecyldimethylammonium chloride, and didecyldimethylammonium chloride, preferably wherein the dialkyldimethylammonium chloride is didecyldimethylammonium chloride.

7. The disinfectant composition of claim 6, wherein the composition comprises 0.001% w/v to 1% w/v of didecyldimethylammonium chloride, preferably 0.01% w/v to 0.7% w/v of didecyldimethylammonium chloride.

8. The disinfectant composition of any one of claims 1 to 7, wherein the composition is biodegradeable.

9. The disinfectant composition of any one of claims 1 to 8, wherein the aqueous solvent is water.

10. The disinfectant composition of any one of claims 1 to 9, wherein the composition has virucidal activity as measured by BS EN 14476.

11. The disinfectant composition of claim 10, wherein the virucidal activity of the composition is against a Picornavirus, a Poxvirus, a Coronavirus or a combination thereof.

12. The disinfectant composition of any one of claims 1 to 11, wherein the composition has antibacterial activity as measured by BS EN 1500.

13. The disinfectant composition of any one of claims 1 to 12 which is a sporicidal disinfectant composition.

14. The disinfectant composition of claim 13, wherein the composition has sporicidal activity as measured by BS EN 17126.

15. A consumer product comprising the disinfectant composition of any one of claims 1 to 14.

16. The consumer product of claim 15, wherein the product comprises at least one of a disinfectant spray, hand sanitizer solution or gel, antiseptic wipe or antiseptic patch.

17. A non-therapeutic method of disinfecting an article or surface comprising treating said article or surface with the disinfectant composition of any one of claims 1 to 14 or the consumer product of claim 15 or claim 16.