WE CLAIM:

~~1. A binding system that selectively increases the bioactivity of a phenolic compounds at a target site, the system comprising:~~

~~a phenolic component comprising a tannin having a molecular weight ranging from about 500 Daltons to about 4000 Daltons; and,~~

~~hydrogen peroxide;~~

~~wherein,~~

~~the hydrogen peroxide is combined with the tannin at a tannin:peroxide weight ratio that ranges from about 1:1000 to about 10:1.~~

~~2. A binding system that selectively increases the bioactivity of a phenolic compound at a target site, the system comprising:~~

~~a phenolic component comprising a tannin having a molecular weight ranging from about 500 Daltons to about 4000 Daltons; and,~~

~~hydrogen peroxide;~~

~~wherein,~~

~~the hydrogen peroxide is combined with the tannin at a tannin:peroxide weight ratio that ranges from about 1:1 to about 1:50.~~

~~3. A binding system that selectively increases the bioactivity of a phenolic compound at a target site, the system comprising a combination of:~~

~~a phenolic component comprisingan ellagitannin; and,~~

~~hydrogen peroxide;~~

~~wherein, the ratio of phenolic component to hydrogen peroxide ranges from about 1:2 to about 1:20 on a molar weight basis.~~

~~4. A stabilized reagent pair for aqueous transport to a target site, the reagent pair comprising:~~

~~a tannin having a molecular weight ranging from about 500 Daltons to about 4000 Daltons; and,~~

~~hydrogen peroxide;~~

wherein,

the hydrogen peroxide is combined with the tannin at a tannin:peroxide weight ratio that ranges from about 1:1000 to about 10:1.

5. A pharmaceutical formulation comprising the reagent pair of claim 4 and a pharmaceutically acceptable excipient, wherein the tannin comprises a catechin, and the tannin:peroxide ratio ranges from about 1:10 to about 1:50.

6. A pharmaceutical formulation comprising the system of claim 1, 2, or 3 and a pharmaceutically acceptable excipient.

7. The system of claim 1, 2, or 3, wherein the phenolic component is a hydrolysable tannin, a condensed tannin, or a combination thereof.

8. The system of claim 1, 2, or 3, wherein the phenolic component is a flavanol.

9. The system of claim 1, 2, or 3, wherein the phenolic component is a catechin.

10. The system of claim 1, 2, or 3, wherein the phenolic component is gallic acid, epigallic acid, or a combination thereof.

11. The system of claim 1, 2, or 3, wherein the weight ratio of the tannin:peroxide ranges from about 1:1 to about 1:50.

12. A kit comprising the system of claim 1, 2, or 3, wherein the kit comprises

a dry form of the phenolic component; and,

a dry material for releasing hydrogen peroxide.

13. A kit comprising the system of claim 12, wherein the dry material for releasing hydrogen peroxide selected from the group consisting of sodium percarbonate, potassium percarbonate, an amino perhydrate, a carbamide peroxide, a magnesium peroxide, and urea peroxide, as well as instructions for mixing the components to create the system for administration and suggested dilution factors for various target sites, as

~~well as instructions for diluting the system for administration with suggested dilution factors for various target sites.~~

~~14. A use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use as an antitoxin.~~

~~15. A use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use as an anti-inflammatory.~~

~~16. A use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use as an antimicrobial.~~

~~17. A composition comprising the system of claim 1, 2, or 3, for use in treating a gastrointestinal condition.~~

~~18. A use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in treating a damaged dermal tissue.~~

~~19. A use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in treating a damaged mucosal tissue.~~

~~20. A dietary supplement comprising the system of claim 1, 2, or 3, for use in promoting weight gain in an animal.~~

~~21. The system of claim 1, 2, or 3, wherein the phenolic component is a punicalagin.~~

1. A binding system for use in killing antibiotic-resistant bacteria, the system comprising:

a phenolic component comprising a tannin having a molecular weight ranging from about 500 Daltons to about 4000 Daltons; and,

hydrogen peroxide;

wherein,

the hydrogen peroxide is combined with the tannin at a tannin:peroxide weight ratio that ranges from about 1:1000 to about 10:1; and,

the system is effective at killing antibiotic-resistant bacteria.

2. The binding system of claim 1, wherein,

the weight ratio of phenolic component to hydrogen peroxide ranges from about 1:1 to about 1:50.

3. The binding system of claim 1, wherein the phenolic component is an ellagitannin.

4. The system of claim 1, 2, or 3, wherein the phenolic component is a hydrolysable tannin, a condensed tannin, or a combination thereof.

5. The system of claim 1, 2, or 3, wherein the phenolic component is a flavanol.

6. The system of claim 1, 2, or 3, wherein the phenolic component is a catechin.

7. The system of claim 1, 2, or 3, wherein the phenolic component is gallic acid, epigallic acid, or a combination thereof.

8. A kit comprising the system of claim 1,2, or 3, wherein the kit comprises

a dry form of the phenolic component; and,

a dry material for releasing hydrogen peroxide, the dry material selected from the group consisting of sodium percarbonate, potassium percarbonate, an amino perhydrate, a carbamide peroxide, a magnesium peroxide, and urea peroxide, as well as instructions for mixing the components to create the system for administration.

9. Use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in treating a methicillin resistant staphylococcus aureus (MRSA) infection.

10. Use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in treating an antibiotic-resistant Klebsiella pneumonia infection.

11. A composition comprising the system of claim 1,2, or 3, for use in killing an antibiotic-resistant bacteria selected from the group consisting of Escherichia coli, Salmonella enterica serotype typhimurium, Staphylococcus aureus, a methicillin resistant staphylococcus aureus (MRSA), Pseudomonas aeruginosa, Listeria monocytogenes, Pasteurella multocida, Proteus vulgaris, Klebsiella pneumonia, Bacillus cereus, Bordetella bronchiseptica.

12. Use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in treating an antibiotic-resistant Salmonella enterica serotype typhimurium infection.

13. Use of the system of claim 1, 2, or 3, in the manufacture of a medicament for use in an antibiotic-resistant Pseudomonas aeruginosa.

14. A dietary supplement comprising the system of claim 1, 2, or 3, for use in killing Salmonella enterica serotype typhimurium.

15. The system of claim 1, 2, or 3, wherein the phenolic component is a punicalagin.