THAT WHICH IS CLAIMED IS:

1. A method for inactivation and extraction of acid-fast bacteria in a test sample, the method comprising the following sequential steps:

(a) transferring a test sample of at least 3 ml from a liquid culture containing acid-fast bacteria to a first tube, wherein the first tube comprises a body, a first end to the body having an opening, and a second end to the body having a frustoconical portion ending in a concave tip;

(b) centrifuging the first tube to pellet the acid-fast bacteria in the concave tip and subsequently decanting a first supernatant, wherein the frustoconical portion ending in the concave tip is configured to retain the pellet of acid-fast bacteria in the concave tip while decanting at least 90% of the first supernatant;

(c) resuspending the acid-fast bacteria pellet in alcohol to generate a suspension;

(d) transferring the suspension from the first tube to a second tube containing beads;

(e) agitating the second tube to break up clumps and/or disrupt acid-fast bacteria cells; and

(f) incubating the suspension at room temperature, preferably for at least 5 minutes, to inactivate the acid-fast bacteria in the test sample.

2. The method of claim 1, further comprising the following step:

(g) transferring the suspension to a third tube and centrifuging the third tube to pellet the inactivated acid-fast bacteria and subsequently removing a second supernatant.

3. The method of claim 2, further comprising the following steps:

(h) resuspending the inactivated acid-fast bacteria pellet to generate a solution comprising the inactivated acid-fast bacteria;

(i) extracting cellular proteins from the solution comprising inactivated acid-fast bacteria and centrifuging the solution to pellet the cellular debris;

(j) transferring an aliquot of a third supernatant from step (i) to a mass spectrometry target slide; and

(k) identifying protein profiles of the inactivated acid-fast bacteria on the mass spectrometry slide using a mass spectroscopy instrument.

4. The method as claimed in claim 3, wherein the pellet in step (h) is re-suspended in formic acid.

5. The method as claimed in claim 4, wherein acetonitrile is added to the re-suspended inactivated acid-fast bacteria to a final concentration of from 35% to 65%.

6. The method of any one of claims 3-5, wherein said acid-fast bacteria sample is identified to the family, genus, species, strain level and/or group/complex.

7. The method of any one of claims 3-6, further comprising interrogating the test sample on the slide by mass spectrometry to acquire one or more mass spectra of the acid-fast bacteria and characterizing and/or identifying said acid-fast bacteria in the test sample by comparison of the measured one or more mass spectra with one or more reference mass spectra.

8. The method of any one of claims 1-7, wherein the body has a volume of 5 mL.

9. The method of any one of claims 1-8, wherein at least 99% of the first supernatant is removed in step (b).

10. The method of any one of claims 1-9, wherein said acid-fast bacteria is *Mycobacterium* or *Nocardia*.

11. The method as claimed in any one of claims 1-10, wherein said alcohol is ethanol.

12. The method as claimed in any of claims 1-11, wherein step (e) comprises agitating the second tube using a bead beater or vortex and beads, wherein said beads are 0.5 mm glass beads.

13. The method of any one of claims 1-12, wherein the method comprises incubating the suspension in step (f) for at least 10 minutes.

14. A method for inactivation, extraction, and identification of acid-fast bacteria in a test sample from liquid media, the method comprising the following sequential steps:

(a) transferring a test sample from a liquid culture medium containing acid-fast bacteria to a first tube, wherein the first tube comprises a body, a first end to the body having an opening, and a second end to the body having a frustoconical portion ending in a concave tip;
(b) centrifuging the first tube to pellet the acid-fast bacteria in the concave tip and subsequently decanting a first supernatant;
(c) resuspending the acid-fast bacteria pellet in alcohol to generate a suspension;
(d) transferring the suspension to a second tube containing beads for mechanical disruption;
(e) incubating the suspension at room temperature in alcohol to inactivate the acid-fast bacteria;
(f) transferring the suspension to a third tube;
(g) centrifuging the third tube to pellet the inactivated acid-fast bacteria and subsequently removing a second supernatant;
(h) resuspending the inactivated acid-fast bacteria pellet to generate a solution comprising the inactivated acid-fast bacteria;
(i) extracting cellular proteins from the solution comprising inactivated acid-fast bacteria and centrifuging the solution to pellet the cellular debris;

(j) transferring an aliquot of a third supernatant from step (i) to a mass spectrometry target slide; and

(k) interrogating the mass spectrometry target slide by mass spectrometry to acquire one or more mass spectra of protein profiles of the acid-fast bacteria and characterizing and/or identifying said acid-fast bacteria in the test sample by comparison of the measured one or more mass spectra with one or more reference mass spectra of protein profiles.

15. The method of claims 3-8 or 14, wherein the cellular proteins are extracted in step (i) using formic acid.

16. The method of claim 15, further comprising adding acetonitrile after adding the formic acid, wherein the acetonitrile extracts cellular proteins from the inactivated acid-fast bacteria.

17. The method of any one of claims 14-16, further comprising agitating the second tube to break up and/or disrupt the acid-fast bacteria after the addition of alcohol.

18. A method for identification of acid-fast bacteria in a test sample, the method comprising the following sequential steps:

(a) transferring a test sample of at least 3 ml from a liquid culture containing acid-fast bacteria to a first tube, wherein the first tube comprises a body, a first end to the body having an opening, and a second end to the body having a frustoconical portion ending in a concave tip;

(b) centrifuging the first tube to pellet the acid-fast bacteria in the concave tip and subsequently decanting a first supernatant, wherein the frustoconical portion ending in the concave tip is configured to retain the pellet of acid-fast bacteria in the concave tip while decanting at least 90% of the first supernatant;

(c) resuspending the acid-fast bacteria pellet in alcohol at room temperature in, or before transferring to, a second tube;

(d) agitating the second tube to break up clumps and/or disrupt acid-fast bacteria cells; and

(e) identifying the acid-fast bacteria via mass spectrometry.

19. The method of any one of claims 1-18, further comprising determining that the test sample is positive for microorganism growth prior to transferring the test sample to the first tube.

20. The method of claim 19, wherein the test sample is transferred to the first tube between 24-72 hours after testing positive.

21. The method of claim 19, wherein the test sample is transferred to the first tube within 24 hours after testing positive.

22. The method of claim 21, wherein the test sample is transferred to the first tube within a period of time selected from 1 hour, 2 hours, 4 hours, 6 hours, 8 hours, 10 hours, and 12 hours.