Various methods of extracting bioactive compounds from *Leptospermum* are known in the art. However, these methods do not properly take into account factors that affect the stability, and thus the physiological activity of these bioactive compounds. For example, a number of extraction methods utilise heat, however a number of bioactive compounds are sensitive to elevated temperatures and application of heat can either reduce their physiological activity or degrade these bioactive compounds. Additionally, the art is focused primarily on Manuka *honey* produced by bees when pollenating *Leptospermum* plant species, as distinct from any bioactives that might be present in *Leptospermum* plant material itself.

It would be desirable to identify new novel processes for extracting and preparing useful substances from plants of the genus *Leptospermum* comprising desirable extraction conditions allowing for effective extraction of bioactive compounds having potential physiological and biochemical activity. Further, it would be desirable to identify new uses for *Leptospermum* extracts for improving human health.

Any publications mentioned in this specification are herein incorporated by reference. However, if any publication is referred to herein, such reference does not constitute an admission that the publication forms a part of the common general knowledge in the art in Australia or any other country.

SUMMARY

The inventors have identified that extracts prepared from *Leptospermum* exhibit novel biological and therapeutic activity, useful for the treatment of disease and conditions as well as for improving human health.

In an aspect, there is provided a use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing lung cancer in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum*

rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran, and wherein the polar solvent is water.

In another aspect, there is provided a use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing mesothelioma in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*, wherein the polar solvent extract is an aqueous extract.

In another aspect, there is provided a use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating a metabolic syndrome in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens,*

Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran, wherein the polar solvent extract is an aqueous extract, and wherein the metabolic syndrome is hyperglycemia, dyslipidemia, obesity and/or adiposity.

In another aspect, there is provided a use of a polar solvent extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for maintaining healthy glucose levels in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*, wherein the polar solvent extract is an aqueous extract.

In another aspect, there is provided a use of an extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing a disease or condition associated with oxidative stress, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum,*

Leptospermum variabile, and Leptospermum wooroonooran, and wherein the polar solvent is water.

In another aspect, there is provided a method of producing a polar solvent extract, the method comprising:

- contacting fragmented plant material from a plant of the genus *Leptospermum* with a polar solvent for a period of at least about 10 minutes to about 2 hours and at a temperature of at least 50ºC to 120ºC, wherein the polar solvent is an aqueous solvent;
- separating remaining solids from the polar solvent to yield the extraction; and
- removing or reducing the amount of polar solvent in the extract following separation of the solids to yield a concentrated extract,

wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran.*

In another aspect, there is provided a composition comprising an aqueous extract from a plant of the genus *Leptospermum,* wherein the plant is selected from the group consisting of *Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum*

purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran.

Accordingly, an example of the disclosure provides a method of treating cancer in a subject in need thereof comprising administering a composition comprising a polar solvent extract from a plant of the genus *Leptospermum*. In a further, related example there is also provided the use of a polar solvent extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating cancer in a subject in need thereof.

Preferably, the polar solvent extract is an aqueous extract.

A further example of the disclosure provides a method for treating mesothelioma in a subject in need thereof comprising administering a composition comprising a polar solvent extract from a plant of the genus *Leptospermum*. In a further, related example there is also provided the use of a polar solvent extract from a plant of the genus Leptospermum in the manufacture of a medicament for treating mesothelioma in a subject in need thereof.

The term “bioactive compounds” refers to active components that are able to exert effects on innate biological pathways in a subject, for example by activation or repression of physiological pathways.

A further example of the disclosure provides a method of treating a metabolic syndrome in a subject in need thereof comprising administering an extract from a plant of the genus *Leptospermum.* In a further, related example there is also provided the use of an extract from a plant from genus *Leptospermum* in the manufacture of a medicament for treating a metabolic syndrome in a subject in need thereof.

In examples, the metabolic syndrome is selected from hyperglycemia, dyslipidemia, obesity and/or adiposity.

Yet another example of the disclosure provides a method of maintaining healthy glucose levels in a subject in need thereof comprising administering an extract from a plant of the genus *Leptospermum*. In a further, related example there is also provided the use of an extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for maintaining healthy glucose levels in a subject in need thereof.

A further example of the disclosure provides a method of treating or preventing a disease or condition associated with oxidative stress in a subject comprising administering an extract from a plant of the genus *Leptospermum* to a subject in need thereof. In a further, related example there is also provided the use of an extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing a disease or condition associated with oxidative stress.

In some examples, the extract comprises phytochemicals. In some examples, the phytochemicals, or actives, are phenolic compounds.

The inventors have found that the total phenolic component (TPC) of the extract comprises phytochemicals, including phenolic compounds in particular. The phytochemicals (actives) have been shown to have potent antioxidative properties.

In some examples, the extract comprises any one or more actives selected from the group consisting of: aromadendrin glucoside, kaempferol rhamnoside, quercetin rhamnoside, vindoline, 5-dihydroxy-6-methyl-7-methoxyflavanone, and methylglyoxal. In some examples, the extract comprises at least 3, at least 4, at least 5 or all 6 of these actives.

In some examples, the extract is in powder form.

In some examples, the extract is in encapsulated form.

The term “encapsulation” refers to the process of coating compounds or molecules. Encapsulation has been shown to improve bioaccessibility and bioavailability of certain compounds, for example, bioactive compounds that are sensitive to digestion in the gastrointestinal tract.

While the present example describes the preparation and use of extracts from *Leptospermum*, specific actives may be isolated from the *Leptospermum* extract (and optionally purified), and those actives may also be used in the methods of the present disclosure. In this context, the term “extract” also extends to an isolated active compound from the extract.

The inventors have also identified an improved method for producing an extract from a plant of the genus *Leptospermum*, which utilises a polar solvent to extract bioactive compounds (also referred to herein as actives) that would typically be degraded in conventional extraction processes known in the art.

Accordingly, an example of the disclosure provides a method of producing an extract, the method comprising:

- contacting fragmented plant material from a plant of the genus *Leptospermum* with a polar solvent for a period of at least about 10 minutes to about 2 hours and at a temperature of at least 50ºC to 120 ºC;
- separating remaining solids from the polar solvent to yield the extract.

The example is produced with the use of a polar solvent, such as water, ethanol, methanol, acetone, or mixtures thereof. The fragmented plant material from a plant of the genus *Leptospermum* is contacted with a polar solvent in order to extract the polar solvent-soluble chemical compounds or actives from the plant material into the polar solvent. The extract thus obtained can be further treated to either remove or reduce the volume of polar solvent to produce a concentrated extract. The extract may also be subjected to further steps, for example purified to obtain individual or groups of bioactive compounds, dried to obtain powdered extract, or encapsulated to get the encapsulated extract.

The polar solvent may be selected from the group consisting of water and polar organic solvents.

In a preferred example, the polar solvent comprises water. In most preferred examples, the polar solvent is water.

Examples of suitable polar organic solvents include short-chain polar organic solvents containing between 1 and 6 carbon atoms, such as short chain alcohols (C1-C6 alcohols,

examples being methanol or ethanol), glycerine and acetone. The polar solvents are preferably non-toxic. Combinations of solvents may also be used, such as water and alcohol to yield a hydroalcoholic extract, or water and glycerine to yield a hydroglycolic extract. In another alternative sequential extraction using different solvents may be practiced, and the extracts combined.

The extracts so produced are distinct from essential oils produced from the *Leptospermum* plant species. Essential oils are extracts of the volatile components of the plant material, those volatile components having been extracted by distillation or similar processes that involve collection of volatile components of the plant. The volatile components are those capable of separation from the plant material through distillation on the application of heat. The essential oil components may comprise non-polar compounds. Such compounds may include aromatic compounds, terpenes and other volatile hydrocarbon products. The term “volatile organic compound” refers to an organic compound that has a boiling point (an initial boiling point) in the range of 50 to 250°C, measured at atmospheric pressure. The nature of the plant components that are extracted into the polar-solvent extracts (e.g. aqueous extracts) are non-volatile compounds, which are different to volatile compounds in essential oils.

The balance of the composition is made up of other plant products and byproducts, and optionally the solvent (e.g. water).

The term “other plant products and byproducts” refers to naturally occurring byproducts and other substances arising during the extraction process, and may include hydrocarbon compounds, amino acids, chlorophyll, or any other bioactive compounds or actives. Examples of other plant products and byproducts present in the extract include, but are not limited to, alkaloids, glycosides, steroids, triterpenoids, tannins, flavonoids and proteins. These plant products and byproducts are typically polar solvent-soluble components. Plant solids (i.e. the fibrous plant material or pulp) are not within the scope of this term.

In a preferred example, the fragmented plant material is dried to a moisture content not greater than 10% prior to contacting with the polar solvent.

Combining this step with the other steps of the process, according to this preferred example, the method of producing an extract comprises:

- drying fragmented plant material from a plant of the genus *Leptospermum* to a moisture content not greater than 10%;

- contacting the fragmented dried plant material with a polar solvent for a period of at least about 10 minutes to about 2 hours and at a temperature of at least 50ºC to 120 ºC; and
- separating remaining solids from the polar solvent to yield the extract.

In a further example, there is provided a composition comprising a polar solvent extract from a plant of the genus *Leptospermum*. Expressed in a different manner, provided in the present example is a composition comprising bioactive compounds from a plant of the genus *Leptospermum*. The composition comprises polar solvent-soluble bioactive compounds from the plant of the genus *Leptospermum*, or aqueous-soluble bioactive compounds from the plant of the genus *Leptospermum*, specifically.

In some examples, the composition comprises any one or more actives selected from the group consisting of: aromadendrin glucoside, kaempferol rhamnoside, quercetin rhamnoside, vindoline, 5-dihydroxy-6-methyl-7-methoxyflavanone, and methylglyoxal (MGO). In some examples, the composition comprises at least 3, at least 4, at least 5 or all 6 of these actives.

The balance of the composition is made up of other plant products and byproducts, and optionally the solvent.

The term “other plant products and byproducts” is as defined above.

In some examples, the polar solvent extract is an aqueous extract.

In some examples, the composition comprises a polar solvent extract of plant material of the genus *Leptospermum*. In some examples, the composition comprises an aqueous extract of plant material of the genus *Leptospermum*. In some examples, the composition comprises a polar solvent extract of dried plant material of the genus *Leptospermum*. In one specific example, the composition comprises an aqueous extract of dried plant material of the genus *Leptospermum*

In some examples, the polar solvent is removed following extraction.

In some examples, the composition further comprises a honey component. Preferably, the honey component is a dried honey product or a honey powder.

BRIEF DESCRIPTION OF FIGURES

Embodiments of the disclosure will now be described by way of example only with reference to the following non-limiting Figures. Extracts according to the present disclosure

CLAIMS

1. Use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing lung cancer in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran,* and wherein the polar solvent is water.
2. Use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing mesothelioma in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*, wherein the polar solvent extract is an aqueous extract.

3. The use of claim 2, wherein the mesothelioma is a mesothelioma of the lung, abdomen or heart.
4. Use of a polar solvent-extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating a metabolic syndrome in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*, wherein the polar solvent extract is an aqueous extract, and wherein the metabolic syndrome is hyperglycemia, dyslipidemia, obesity and/or adiposity.
5. Use of a polar solvent extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for maintaining healthy glucose levels in a subject in need thereof, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*, wherein the polar solvent extract is an aqueous extract.

6. Use of an extract from a plant of the genus *Leptospermum* in the manufacture of a medicament for treating or preventing a disease or condition associated with oxidative stress, wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran,* and wherein the polar solvent is water.
7. The use of any one of claims 1 to 6, wherein the extract comprises any one or more actives selected from the group consisting of: aromadendrin glucoside, kaempferol rhamnoside, quercetin rhamnoside, vindoline, 5-dihydroxy-6-methyl-7-methoxyflavanone, and methylglyoxal.
8. The use of any one of claims 1 to 7, wherein the composition or medicament is in a form to be administered orally.
9. The use of any one of claims 1 to 8, wherein the extract is in powder form.
10. The use of any one of claims 1 to 9, wherein the extract is in encapsulated form.
11. The use of any one of claims 1 to 10, wherein the polar solvent extract is formulated to be administered with an additional therapeutic agent selected from the group consisting of: a chemotherapeutic agent, an anti-inflammatory agent, an immunomodulatory agent, a neurotropic factor, an agent for treating a cardiovascular disease, an agent for treating liver disease, an anti-viral agent, an agent for treating hyperglycemia, and an agent for treating immunodeficiency disorders.
12. The use of any one of claims 1 to 11, wherein the medicament is a food composition.
13. The use of claim 12, wherein the food composition comprises a honey product.
14. The use of claim 13, wherein the honey product is from *Leptospermum scoparum*.
15. The use of claim 13 or claim 14, wherein the honey product is present within the range of about 10 to 99 wt%, based on the total weight of the composition or medicament.

16. The use of any one of claims 1 to 15, wherein the composition or medicament further comprises one or more of: suspending agents, emulsifying agents, gelling agents, wetting agents, fillers, binders, preservatives, flavouring, humectant, colouring and/or sweetening agents.
17. The use of any one of claims 1 to 16, wherein the extract is to be administered once daily.
18. The use of any one of claims 1 to 17, wherein the extract is to be administered at least once daily for a period of 1 month.
19. A method of producing a polar solvent extract, the method comprising:
    - contacting fragmented plant material from a plant of the genus *Leptospermum* with a polar solvent for a period of at least about 10 minutes to about 2 hours and at a temperature of at least 50ºC to 120ºC, wherein the polar solvent is an aqueous solvent;
    - separating remaining solids from the polar solvent to yield the extraction; and
    - removing or reducing the amount of polar solvent in the extract following separation of the solids to yield a concentrated extract,

    wherein the plant is selected from the group consisting of *Leptospermum scoparium, Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum petersonii, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*.
20. The method of claim 19, wherein the polar solvent is water.
21. The method of claim 19 or 20, comprising drying the fragmented plant material to a moisture content not greater than 10% prior to contacting with the polar solvent.
22. The method of any one of claims 19 to 21, wherein the plant material comprises at least 50% leaves and/or stems.

23. The method of any one of claims 19 to 22, comprising removing the polar solvent following separation of the solids to yield a dry extract.
24. The method of any one of claims 19 to 23, wherein polar solvent is removed under vacuum.
25. The method of any one of claims 19 to 24, wherein polar solvent is removed at a temperature of between about 20ºC to 60ºC.
26. The method of any one of claims 19 to 25, wherein the plant material-to-solvent ratio is about 1kg/100L to 20 kg/100L.
27. The method of claim 19 to 26, wherein the contacting of the fragmented plant material with the polar solvent comprises aqueous extraction performed under vacuum.
28. The method of claim 19 to 27, further comprising encapsulating the concentrated extract.
29. An extract produced by the method of any one of claims 19 to 28.
30. A composition comprising an aqueous extract from a plant of the genus *Leptospermum,* wherein the plant is selected from the group consisting of *Leptospermum liversidgei, Leptospermum polygalifolium, Leptospermum laevigatum, Leptospermum continentale, Leptospermum amboinense, Leptospermum arachnoides, Leptospermum brachyandrum, Leptospermum brevipes, Leptospermum coriaceum, Leptospermum deuense, Leptospermum epacridoideum, Leptospermum juniperinum, Leptospermum lanigerum, Leptospermum luehmannii, Leptospermum macrocarpum, Leptospermum minutifolium, Leptospermum multicaule, Leptospermum myrsinoides, Leptospermum nitidum, Leptospermum obovatum, Leptospermum oligandrum, Leptospermum parvifolium, Leptospermum polygalifolium 'Pacific Beauty', Leptospermum purpurascens, Leptospermum rotundifolium, Leptospermum rotundifolium 'Julie Ann', Leptospermum sericeum, Leptospermum speciosum, Leptospermum spectabile, Leptospermum spinescens, Leptospermum squarrosum, Leptospermum trinervium, Leptospermum turbinatum, Leptospermum variabile, and Leptospermum wooroonooran*.
31. The composition of claim 30, comprising any one or more actives selected from the group consisting of: aromadendrin glucoside, kaempferol rhamnoside, quercetin rhamnoside, vindoline, 5-dihydroxy-6-methyl-7-methoxyflavanone, and methylglyoxal.
32. The composition of any one of claims 30 or 31, wherein the composition comprises an aqueous extract of dried *Leptospermum* plant material.
33. The composition of any one of claims 30 to 32, wherein the composition comprises less than 10 wt% polar solvent based on the total weight of the composition.
34. The composition of any one of claims 30 to 33, further comprising a honey product.

35. The composition of any one of claims 30 to 34, wherein the honey product is a dried honey product or a honey powder.