CLAIMS

What is claimed is:

1) A method for purifying one or more chemical components from a starting plant material; the method comprises:
   a) solubilizing the starting plant material in a solubilizer, wherein the solubilizer is a base consisting of the group of calcium hydroxide, sodium carbonate, sodium hydroxide, potassium hydroxide, potassium carbonate, calcium carbonate or a combination thereof and a non-polar solvent, to thereby obtain a mixture having non-soluble plant material, one or more solubilized chemical components, and the solvent;
   b) separating non-soluble plant material from the one or more solubilized chemical components and the solvent, to thereby obtain a mechanically separated solution;
   c) salting the mechanically separated solution with a salting agent and separating the solvent from the one or more solubilized chemical components, to thereby obtain a salted solution having one or more chemical components, and the salting agent;
   d) measuring the refractive index, a pH or both of the salted solution, wherein the refractive index, the pH or both meet a criteria to thereby obtain a salted solution meeting the criteria, wherein the criteria for the refractive index comprises a refractive index of greater than about 22;
   e) crystalizing the salted solution having one or more chemical components and the salting agent, to thereby obtain a crystalline solid having the one or more chemical components and the salting agent; and
   f) separating the salting agent from the crystalline solid having the one or more chemical components to thereby obtain a purified crystalline solid having the one or more chemical components;
   wherein the purified crystalline solid comprises an amount of the one or more chemical components ranging from about 55% w/w and about 100% w/w.
2) The method of Claim 1, wherein the starting material has a weight ranging from about 100 kilograms to about 1000 kilograms.
3) The method of Claim 1, further comprising dehydrating the purified crystalline solid having the one or more chemical components into a powder to obtain a dried product.
4) The method of Claim 1, wherein the starting plant material comprises bark, root system, pollen, root stem, shoot system, stem, leaf, flower, fruit.

5) The method of Claim 1, wherein after solubilizing the starting plant material in acid or base, the method further comprises adjusting a moisture content of the mixture having non-soluble plant material and one or more solubilized chemical components to a range from about 4% and about 70%.
6) The method of Claim 1, wherein Step b) comprises separating the non-soluble plant material from one or more solubilized chemical components and the solvent, comprises gravity separation, force separation, centrifuge separation, or a combination thereof;
or wherein Step c) further includes separating the solvent with phase separation to obtain the salted solution having one or more solubilized chemical components, and the salting agent, preferably wherein phase separation is performed with a conical fermenter.
7) The method of Claim 1, further comprising filtering the mechanically separated solution one or more times.
8) The method of Claim 1, wherein the one or more chemical components is present in an amount ranging from about 70% w/w and about 100% by weight;
or in an amount ranging from about 90% w/w and about 100% by weight.
9) A method for purifying one or more chemical components from a starting plant material; the method comprises:
    a) solubilizing the starting plant material having a weight ranging from about 100 kilograms to about 1000 kilograms in a base consisting of the group of calcium hydroxide, sodium carbonate, sodium hydroxide, potassium hydroxide, potassium carbonate, calcium carbonate or a combination thereof, and a non-polar solvent, wherein the solubilized plant material has a moisture content ranging between about 4% and about 70%, to thereby obtain a mixture having non-soluble plant material, one or more solubilized chemical components and the solvent;
    b) mechanically separating the non-soluble plant material from the one or more solubilized chemical components and the solvent, to thereby obtain a mechanically separated solution;
    c) filtering the mechanically separated solution to further remove non-soluble plant material one or more times to thereby obtain a filtered solution having the solubilized one or more chemical components and solvent;
    d) salting the filtered solution with a salting agent and separating at least a portion of the solvent from the salted solution, to thereby obtain a salted solution having one or more chemical components, the salting agent, and a residual portion of the solvent;

e) measuring the refractive index, a pH or both of the salted solution, wherein the refractive index, the pH or both meet a criteria to thereby obtain a salted solution meeting the criteria, wherein the criteria for the refractive index comprises a refractive index of greater than about 22;

f) separating the residual portion of the solvent from the salted solution meeting the criteria, to thereby obtain a filtered salted solution;

g) crystalizing the filtered salted solution, to thereby obtain a crystalline solid having the one or more chemical components and the salting agent;

h) separating the salting agent from the crystalline solid having the one or more chemical components to thereby obtain a purified crystalline solid having the one or more chemical components; and

i) dehydrating the purified crystalline solid having the one or more chemical components into a powder to obtain a dried product;

wherein the dried product comprises an amount of the one or more chemical components ranging from about 55% w/w to about 100 w/w .

10) The method of Claim 1 or 9, wherein the starting plant material comprises bark, root system, pollen, root stem, shoot system, stem, leaf, flower, fruit, and/or

wherein the starting plant material is derived from one or more of the following plant species: *Acer saccharinum* (Maple), *Argemone Mexicana* (Argemone - Prickly Poppy), *Chionanthus virginicus* (Fringe tree), *Abies balsamea* (L.)(Mill., Balsam Fir), *Acacia senegal* (Acacia), *Achillea millefolium* (Yarrow), *Acorus calamus* (Calamus root), *Adiantum capillus-veneris* (Maidenhair Fern), *Aesculus hippocastanum* (Horse Chestnut), *Agaricus blazei* (mushroom), *Agathosma betulina (*Buchu), *Agave tequilana* (Agave syrup), *Agrimonia eupatoria L*. (Agrimony), *Agropyron repens* (Couch grass), *Alchemilla vulgaris* (Lady's Mantle) *Aletris farinosa* (Unicorn Root - Colic Root), *Aleurites moluccanus* (Kukui Nut Oil), *Allium sativum* (Garlic Aloe vera, Aloe Vera Gel), *Aloysia citriodora* (Lemon Verbena), *Alpinia officinarum* (Galangal Root), *Althaea officinalis L*. (Marsh Mallow Root), *Anacardium occidentale* (Cashew Nut), *Ananas comosus* (Pineapple), *Andrographis paniculata* (Andrographis), *Anethum graveolens* (Dill), *Angelica archangelica* (Angelica root), *Angelica sinensis* (Dong Quai), *anthriscus cerefolium* (Chervil), *Apium graveolens* (Celery Seed), *Aralia racemosa* (Spikenard), *Arctium lappa* (Burdock root), *Arctostaphylos uva-ursi* (Uva Ursi), *Argania spinosa* (Argan Oil), *Aristolochia spp* (Snakeroot), *Armoracia rusticana* (Horseradish root), *Arnica montana* (Arnica), *Artemisia absinthium L*. (Wormwood), *Artemisia dracunculus*

(Tarragon), *Artemisia vulgaris* (Mugwort), *Arthrospira platensis* (Spirulina), *Asarum canadense* (Wild Ginger), *Asclepias syriaca* or A. *cornute* (Milkweed), *Asclepias tuberosa* (Pleurisy Root), *Aspalathus linearis* (Rooibos), *Asparagus spp* (Asparagus), *astragalus membranaceus* (Astragalus root), *Atropa belladonna* (Belladonna), *Avena sativa L*. (Oats), *Azadirachta Indica* (Neem), Bacopa monnieri, Bacopa, Berberis vulgaris L., Barberry, Betula alba, Birch bark & leaf, Bixa orellana , Annatto Seed, Borago officinalis, Borage Seed Oil, Boswellia thurifera, Boswellia (Frankincense), Brassica napus, Canola oil rapeseed, Brassica nigra, Mustard, Brosimum alicastrum, Ramon Nut, Bupleurum chinense, Bupleurum, Butyrospermum parkii, Shea Nut Butter, Calendula officinalis, Calendula, Calophyllum inophyllum, Tamanu Oil, Camellia sinensis, Tea, *Camellia sinensis*, Oolong Tea, *Cananga adorata*, Ylang-Ylang, *Cannabis sativa*, Hemp Oil, *Capsella bursa-pastoris*, Shepherd's Purse, *Capsicum minimum*, Cayenne Pepper, Caralluma fimbriata, Caralluma, Carapa guianensis, Andiroba Oil, Carica papaya, Papaya, Carthamus tinctorius, Safflower Oil, Carum carvi, Caraway Seed, Cassia nomame, Cassia Nomame, Caulophyllum thalictroides, Blue Cohosh Root, Ceanothus americanus, Red Root, Cedrus atlantica, Cedarwood, Atlas, Centaurea cyanus, Cornflowers, Centaurium erythraea, Centaury, Centella asiatica (L.) , Gotu Kola, Ceratonia siliqua, Carob, Chamaelirium luteum, False Unicorn Root, Chelidonium majus, Celandine, Chenopodium ambrosioides, pazote, Chrysanthemum leucanthemum, Oxeye Daisy, Chrysanthemum morifolium, C. sinense, Chrysanthemum, Cichorium intybus, Chicory root, Cimicifuga racemosa, Black Cohosh root, Cinchona spp, Peruvian Bark, Cinnamomum camphora, Camphor, Cinnamomum zeylanicum, C. cassia, Cinnamon, Citrus aurantifolia, Lime Oil, Citrus aurantium subsp. amara or Bigaradia, Neroli, Citrus bergamia, Bergamot Oil, Citrus brigarade, Petitgrain Oil, Citrus limonum, Lemon, Citrus paradisi, Grapefruit, Citrus sinensis, Citrus spp., Orange, Citrus x aurantium subsp. amara, Bitter Orange, Cnicus benedictus, Blessed Thistle, Coccinia grandis, Ivy gourd, Cocos nucifera, Coconut oil, Codonopsis pilosula, Codonopsis, Coffea arabica, Coffee, Cola acuminata, Kola Nut, Commiphora myrrha, Myrrh, Convolvulus Jalapa, Jalap, Copaifera Officinalis, Copaiba Balsam, Coptis spp, Coptis, Coriandrum sativum, Cilantro, Coriandrum sativum, Coriander, Corydalis spp, Corydalis, Corylus avellana, Hazelnut Oil, Crataegus monogyna, Hawthorn Berry, Crocus sativus, Saffron, Cucurbita pepo, Pumpkin Seed, Cuminum cyminum, Cumin, Cupressus sempervirens, Cypress Oil, , Curcuma longa L., Turmeric, Cyclopia spp, HoneyBush, Cymopogon citratus, C.flexuosus, Lemongrass, Cynara scolymus, Artichoke, Globe, Datura spp, Datura, Daucus carota L., Carrot, Wild, Digitalis

purpurea, foxglove digitalis, Dioscorea villosa, Wild Yam Root, Echinacea angustifolia, Echinacea, Elettaria cardamomum, Cardamom, Eleutherococcus senticosus, Eleuthero Root ,Epilobium angustifolium, Fireweed, Epimedium grandiflorum, Epimedium, Equisetum arvense, Horsetail, Erythroxylum catuaba, Catuaba, Erythroxylum coca, Coca, Eschscholzia californica, California Poppy, Eucalyptus globulus, Eucalyptus, Eugenia Jambolana, Jambul, Eupatorium perfoliatum, Boneset, Eupatorium purpureum, Joe-pye weed, Euphrasia, various species, Eyebright, Euterpe oleracea, Acai Berry, Ferula asafoetida, Asafoetida root, Filipendula ulmaria, Meadowsweet, Foeniculum vulgare, Fennel Seed, Forsythia suspensa, Forsythia Fruit, Fucus vesiculosis, Kelp/Bladderwrack, Fumaria officinalis, Fumitory, Galega officinalis, Goat's Rue, Galium aparine, Cleavers, Galium odoratum, Sweet Woodruff, Ganoderma lucidum, Reishi Mushroom, Garcinia cambogia, Garcinia Fruit, Gaultheria procumbens, Wintergreen Oil, Gentiana lutea, Gentian, Ginkgo biloba L., Ginkgo biloba, Glechoma hederacea L, Ground Ivy, Glycyrrhiza glabra, Licorice Root, Grifola frondosa, Maitake mushroom, Grindelia spp, Grindelia, Gymnema sylvestre, Gurmar, Gynostemma pentaphyllum, Jiaogulan, Hamamelis virginiana, Witch Hazel, Harpagophytum procumbens, Devil's Claw, Helianthemum canadense (L.) Michx., Rock Rose, Helianthus annuus, Sunflower, Helichrysum angustifolium, Immortelle Oil, Hepatica nobilis var. obtusa, Hepatica Liver-Leaf, Hibiscus sabdariffa, Hibiscus, Hippophae rhamnoides, Sea Buckthorn Oil, Hoodia Gordonii, Hoodia, Hordeum vulgare, Barley Grass, Humulus Lupulus, Hops, Hyacinthus nonscriptus, Wild Hyacinth, Hydrastis canadensis, Goldenseal, Hyoscyamus niger, Henbane, Hypericum perforatum, St. John's Wort, Hyssopus officinalis, Hyssop, Ilex paraguariensis, Yerba Mate, Impatiens capensis, Jewel Weed, Inonotus obliquus, Chaga Mushroom, Inula helenium , Elecampane, Iris germanica, Orris Root, Jasminum officinale, Jasmine Flower Oil, Juglans cinerea, Butternut, Juglans nigra, Black Walnut, Juniperus communis, Juniper Berries, Lactuca virosa, Wild lettuce, Larrea tridentata, Chaparral, Laurus nobilis, Bay Laurel, Lavandula spp, Lavender, Lawsonia inermis, Henna, Leonurus caridica L., Motherwort, Lepidium peruvianum, Maca root, Levisticum officinale, Lovage, Liatris odoratissima, Deer's Tongue, Linum usitatissimum L., Flax seed, Lippia graveolens, Mexican Oregano, Lobelia inflata, Lobelia, Lonicera periclymenum, Honeysuckle, Lycium barbarum, Goji Berries, Lycopodium clavatum,, Club Moss, Lycopus spp., Bugleweed, Magnolia Glauca, Magnolia, Mahonia aquifolium , Oregon Grape root, Malus domestica, Apple, Maranta arundinacea, Arrowroot powder, Marrubium vulgare L., Horehound, Matricaria recutita , Chamomile, Medicago sativa L., Alfalfa, Melaleuca alternifolia, Tea

Tree oil, Melaleuca leucadendron, M. leucadendra, Cajeput Oil, Melissa officinalis, Lemon Balm, Mentha piperita, Peppermint, Mentha pulegium, PennyRoyal, Mentha spicata, Spearmint, Menyanthes trifoliata, Bogbean, Momordica charantia, Bitter Melon, Monarda didyma, Bee Balm, Wild Bergamot, Morinda citrifolia, Noni, Myrica cerifera, Bayberry ,Myristica fragrans, Nutmeg, Myroxylon pereirae, Balsam of Peru, Myrtus communis, Myrtle, Nardostachys jatamansi, Nard Oil, Nasturtium officinale, Watercress, Nelumbo nucifera, Lotus, Nepeta cataria, Catnip, Nigella sativa, Black Seed oil, Ocimum basilicum, Basil, Ocimum sanctum, Holy Basil, Oenothera biennis, Evening Primrose Oil, Olea europea, Olive Oil, Opuntia ficus-indica, Prickly Pear, Origanum majorana, Marjoram,Sweet, Origanum vulgare, Oregano, Paeonia albiflora, White Peony root, Panax ginseng, Ginseng root, Panax quinquefolius , Ginseng Root, American, Papaver rhoeas, Red Poppy Flowers, Passiflora incarnata, Passion Flower, Paullinia Cupana, Guarana, Pausinystalia johimbe, Yohimbe, Pelargonium graveolens, Geranium, Persea americana, Avocado, Petasites vulgaris, Butterbur, Petroselinum crispum, Parsley, Peumus boldus Molina, Boldo, Pfaffia paniculata, Suma Root, Phaseolus vulgaris, White Kidney Bean, Phyllanthus emblica, Amalaki, amla, Phyllanthus niruri, Chanca Piedra, Phytolacca americana, Poke Root, Picea mariana, Spruce Oil, Pimenta officinalis, Allspice, Pimenta racemosa, Bay Rum Oil, Pimpinella anisum, Anise Seed, Pinus sylvestris, Pine, Piper cubeba, Cubeb, Piper longum, Long Pepper, Pippali, Piper methysticum, Kava-Kava, Piper nigrum, Black Pepper, Piscidia piscipula, Jamaican Dogwood, Plantago major ,lanceolata L., Plantain, Plantago psyllium, Plantago ovata, Psyllium, Plectranthus barbatus, Coleus Forskohlii, Podophyllum peltatum, MayApple, Pogostemon patchouli, Patchouli, Polygonatum biflorum, Solomon's Seal, Polygonum multiflorum, Fo-Ti Root, Populus spp, Balm of Gilead, Prunella vulgaris L., Self-Heal, Prunus africanum, Pygeum , Prunus armeniaca, Apricot Oil, Prunus dulcis, Almond Oil, Prunus serotina, Wild Cherry Bark, Ptychopetalum olacoides, Muira puama, Pueraria lobata, Kudzu, Pulsatilla nuttalliana, Pasque Flower, Punica granatum, Pomegranate, Quassia amara, Quassia, Quercus robur, Oak Bark, Ravensara aromatica, Ravensara Oil, Rehmannia glutinosa, Rehmannia root, Rhamnus frangula, Alder Buckthorn, Rhamnus purshiana DC, Cascara Sagrada, Rheum palmatum, Turkey Rhubarb, Rhodiola rosea, Rhodiola, Ricinus communis, Castor Oil, Rosa spp, Rose, Rosmarinus officinalis, Rosemary, Rubus idaeus, Raspberry Leaf, Rumex acetosella var. vulgaris, Sheep Sorrel, Rumex crispus, Yellow Dock, Ruscus aculeatus, Butcher's Broom, Ruta graveolens L., Rue, Salix Alba, White Willow Bark, Salvia officinalis, Sage, Salvia sclarea, Clary Sage, Sambucus nigra, Elderberry, Sanguinaria

canadensis L, Bloodroot, Sanguisorba minor, Salad Burnet, Santalum album, Sandalwood Oil ,Saponaria officinalis, Soapwort, Sassafras albidum, Sassafras root, Satureja montana, Savory, Winter, Summer, Sceletium tortuosum, Sceletium, Schisandra chinensis, Schisandra, Scrophularia nodosa, Figwort, Scutellaria lateriflora, Skullcap, Senna alexandrina Mill., Senna, Serenoa serrulata , Saw Palmetto, Sesamum indicum, Sesame, Silybum marianum L., Milk Thistle Seed, Simmondsia chinensis, Jojoba Oil, Smallanthus sonchifolius, Yacon Root, Smilax sarsaparilla, Sarsaparilla Root, Solidago virgaurea, Goldenrod, Spilanthes acmella, Spilanthes, Stachys officinalis, Wood Betony, Stellaria media, Chickweed, Stevia rebaudiana (Bertoni), Stevia, Styrax benzoin, Benzoin Resin, Symphytum officinale, Comfrey Leaf and root, Syzygium aromaticum, Clove Oil, Tabebuia spp, Pau d'arco, Tanacetum balsamita L., Costmary, Tanacetum parthenium, Feverfew, Tanacetum vulgare, Tansy, Taraxacum officinale, Dandelion Root, Terminalia arjuna, Arjuna, Theobroma cacao L., Cacao, Thuja occidentalis, Thuja oil, Thymus vulgaris, Thyme, Tilia spp, Linden, Trachyspermum ammi, Ajwain Seed, Tribulus terrestris, , Tribulus terrestris L, Trifolium pratense, Red Clover, Trigonella foenum-graecum, Fenugreek, Trillium erectum, Beth Root, Turnera diffusa, Damiana, Tussilago farfara , Colt's Foot, Ulmus fulva, Elm, Slippery, Uncaria tomentosa , Cat's Claw, Urtica dioica, Stinging Nettle, Vaccinium macrocarpon, Cranberry, Vaccinium myrtillus, Bilberry, Vaccinium spp, Blueberries, Valeriana officinalis, Valerian root, Vanilla planifolia, Vanilla, Verbascum spp., Mullein, Verbena hastata, V. officinalis, Vervain, Veronica officinalis, Speedwell, Vetiveria zizanoides, Vetiver Oil, Viburnum opulus , Cramp Bark, Vinca minor, Periwinkle, Viola spp, Violet Leaf, Viscum coloratum, V. album, Mistletoe, Vitex agnus-castus, Chaste Tree, Vitis vinifera, Grapes, Withania somnifera, Ashwagandha root, Yucca spp, Yucca Root, Zanthoxylum spp, Prickly Ash ,Zea mays, Corn Silk, Zingiber officinale, or Ginger Root.

11) The method of Claim 1 or 9, wherein the solvent comprises limonene, p-cymene, pinene, cyclopentyl ethyl ether, i-propylacetate, anisole, ethylene, methyl laurate, petroleum ether, n-hexane, chloroform, methyl chloride, ethyl acetate, hexane , toluene, naptha, xylene, or combinations thereof.

12) The method of Claim 9, wherein Step b) comprises mechanically separating non-soluble plant material from the one or more solubilized chemical components and solvent comprises gravity separation, force separation, centrifuge separation, or a combination thereof, or Step c) comprises filtering the mechanically separated solution two or more times; or Step d) further includes separating the portion of the solvent with phase separation

to obtain the salted solution having one or more chemical components, the salting agent, and a residual portion of the solvent, preferably wherein phase separation is performed in a conical fermenter; or Step h) comprises performing one or more washes; or Step i) comprises subjecting the crystalline solid of Step h) to a dehydrator at a temperature for a time period.

13) The method of Claim 1 or 9, wherein the salting agent of Step c) of Claim 1 or Step d) of Claim 9 comprises glacial acetic acid, hydrochloric acid, sulfuric acid, nitric acid, sulfuric acid, hydrofluoric acid, carbonic acid, citric acid, phosphoric acid, ascorbic acid, calcium hydroxide, sodium carbonate, sodium hydroxide, potassium hydroxide, potassium carbonate or a combination thereof.

14) The method of Claim 1 or 9, wherein the criteria for the pH comprises a pH greater than about 4.0.

15) The method of Claim 1 or 9, wherein crystalizing the mixture having one or more chemical components comprising using seed crystals, or wherein step g) in Claim 9 comprises heating, sonicating or both.

16) The method of Claim 3 or 9, wherein the dried product comprises an amount of the one or more chemical components of at least about 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, or 95% w/w, preferably

wherein the one or more chemical components comprises one or more alkaloids.

17) A purified crystalline solid comprising an amount of one or more plant derived chemical components ranging from about 55% and about 100% or about 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, or 95% w/w, wherein the one or more plant derived chemical components is derived from a starting plant material having a weight ranging from about 100 kilograms to about 1000 kilograms.

18) The purified crystalline solid of claim 17, wherein the one or more plant derived chemical components comprises mitragynine, speciocilatine, speciogynine, paynantheine, ajmalicine, akuammigine, ciliaphylline, corynantheidine, corynoxeine, corynoxine A, corynoxine B, epicatechin, 9-hydroxycorynantheidine, 7-hydroxymitragynine, isomitraphylline, isomitrafoline, isopteropodine, isorhynchophylline, isospeciofoline, mitraciliatine, mitragynine n-oxide, mitragynine oxindole B, mitragynine pseudoindoxyl, mitrafoline,Mitraphylline,mitraversine, thrnchophylline, speciociliatine n-oxide, speciofoline, speciophylline, stipulation, tetrahydroalstonine or their stereoisomers.

19) A purified crystalline solid comprising an amount of a primary alkaloid ranging from about 70% to about 100% and an amount of one or more secondary alkaloids ranging from about 1% to about 30%.

20) The purified crystalline solid of Claim 19, wherein the amount of the primary alkaloid is about 70%, 75%, 80%, 85%, 90%, or 95% w/w and the amount of the one or more secondary alkaloids is about 1%, 2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%, 15%, 20%, 25%, or 30% w/w,

or wherein the primary alkaloid comprises mitragynine or an isomer thereof,

or wherein the one or more secondary alkaloids comprises speciocilatine, speciogynine, paynantheine, ajmalicine, akuammigine, ciliaphylline, corynantheidine, corynoxeine, corynoxine A, corynoxine B, epicatechin, 9-hydroxycorynantheidine, 7-hydroxymitragynine, isomitraphylline, isomitrafoline, isopteropodine, isorhynchophylline, isospeciofoline, mitraciliatine, mitragynine n-oxide, mitragynine oxindole B, mitragynine pseudoindoxyl, mitrafoline,Mitraphylline,mitraversine, thrnchophylline, speciociliatine n-oxide, speciofoline, , speciophylline, stipulation, tetrahydroalstonine or their stereoisomers.

21) The purified crystalline solid of claim 19, wherein the purified crystalline solid is crystalized with sonication.

22) A purified crystalline solid having an amount of one or more chemical components ranging from about 55% and about 100%, wherein the purified crystalline solid is made from a method comprising the steps of:

a) solubilizing the starting plant material having a weight ranging from about 100 kilograms to about 1000 kilograms in a solubilizer with a non-polar solvent, wherein the solubilizer is a base consisting of the group of calcium hydroxide, sodium carbonate, sodium hydroxide, potassium hydroxide, potassium carbonate, calcium carbonate or a combination thereof, to thereby obtain a mixture having non-soluble plant material and one or more solubilized chemical components, and the solvent;

b) separating non-soluble plant material from the one or more solubilized chemical components, and the solvent, to thereby obtain a mechanically separated solution;

c) salting the mechanically separated solution with a salting agent and separating the solvent from the one or more solubilized chemical components, to thereby obtain a salted solution having one or more chemical components, and the salting agent;

d) measuring the refractive index, a pH or both of the salted solution, wherein the refractive index, the pH or both meet a criteria to thereby obtain a salted solution

meeting the criteria, wherein the criteria for the refractive index comprises a refractive index of greater than about 22;

e) crystalizing the salted solution having one or more chemical components, and the salting agent, to thereby obtain a crystalline solid having the one or more chemical components, and the salting agent; and

f) separating the salting agent from the crystalline solid having the one or more chemical components to thereby obtain a purified crystalline solid having the one or more chemical components;

wherein the purified crystalline solid comprises an amount of the one or more chemical components ranging from about 55% w/w and about 100% w/w.