**Evaluation of the inhibitory potential of essential oils and aromatic extracts on SARS-CoV-2 Mpro and PLpro**

Daniel Jan Strub1,2,\*, Michał Talma3, Maria Strub2, Wioletta Rut1, Mikolaj Zmudzinski1, Władysław Brud4, Linlin Zhang5, Xinyuanyuan Sun5, Zongyang Lv6,7, Digant Nayak6,7, Shaun K. Olsen6,7, Rolf Hilgenfeld5,8, Marcin Drąg1\*

*1Department of Chemical Biology and Bioimaging, Wrocław University of Science and Technology, Wyb. Wyspiańskiego 27, 50-370 Wrocław, Poland*

*2 Liquid Technologies sp. z o.o., Gdańska 13, 50-344 Wrocław, Poland*

*3 Department of Bioorganic Chemistry, Wrocław University of Science and Technology, Wyb. Wyspiańskiego 27, 50-370 Wrocław, Poland*

*4 Scientific Committee of the International Federation of Essential Oils and Aroma Trades (IFEAT), c/o TC Group, Level 1, Devonshire House, One Mayfair Place, London W1J 8AJ, UK*

*5 Institute of Molecular Medicine, University of Lübeck, Ratzeburger Allee 160, 23562 Lübeck, Germany*

*6 Department of Biochemistry and Molecular Biology and Hollings Cancer Center, Medical University of South Carolina, Charleston, SC 29425, USA.*

*7 Department of Biochemistry and Structural Biology University of Texas Health Science Center at San Antonio, San Antonio, TX 78229, USA.*

*8 German Center for Infection Research (DZIF), Hamburg-Lübeck-Borstel-Riems Site, University of Lübeck, 23562 Lübeck, Germany*

corresponding authors: daniel.strub@pwr.edu.pl, marcin.drag@pwr.edu.pl

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# **S1. Inhibition assay of selected F&F materials**

Table S1. Inhibition activity of selected F&F materials against SARS-CoV-2 cysteine proteases. \* Inhibitory activity for the concentration of 50 µg/mL of each F&F material. Numbers represent the mean value from two experiments (inhibition < 50%) or five experiments (inhibition > 50%).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **English common name** | **Botanical name** | **Country of origin** | **Mpro \***  **[%] inh.** | **PLpro \***  **[%] inh.** |
| *Acoraceae* | | | | | |
| 1 | Sweet flag  Calamus EO | *Acorus calamus* | India | 1 | 0 |
| *Altingiaceae* | | | | | |
| 2 | Storax gum | *Liquidambar styraciflua* | Honduras | 90.5±3.6 | 8 |
| 3 | Storax resinoid | Honduras | 93.1±0.7 | 13 |
| *Amaranthaceae* | | | | | |
| 4 | Spinach absolute | *Spinacia oleracea* | Egypt | 76.6±5.9 | 15 |
| *Amaryllidaceae* | | | | | |
| 5 | Garlic EO | *Allium sativum* | China | 47 | 34 |
| 6 | Leek EO | *Allium porum* | Egypt | 46 | 23 |
| 7 | Onion EO | *Allium cepa* | Egypt | 40 | 15 |
| *Anacardiaceae* | | | | | |
| 8 | Mango leaf absolute | *Mangifera indica* | Egypt | 22 | 14 |
| 9 | Mastic EO | *Pistacia lentiscus* | Morocco | 18 | 19 |
| 10 | Pepper pink CO2 | *Schinus terebinthifolia* Raddi | Madagascar | 13 | 6 |
| 11 | Schinus molle EO | *Schinus molle* | Peru | 0 | 5 |
| *Annonaceae* | | | | | |
| 12 | Cananga EO | *Cananga odorata (Lam.)*  Hook. f. & Thomson  forma *macrophylla* | Indonesia | 39 | 6 |
| 13 | Ylang-Ylang complete EO | *Cananga odorata* Hook. f. & Thomson forma *genuina* | Madagascar | 0 | 6 |
| 14 | Ylang-Ylang Extra EO | Madagascar | 28 | 22 |
| 15 | Ylang-Ylang I EO | Comoros | 0 | 23 |
| 16 | Ylang-Ylang I EO | Madagascar | 5 | 23 |
| 17 | Ylang-Ylang II EO | Comoros | 6 | 20 |
| 18 | Ylang-Ylang II EO | Madagascar | 24 | 4 |
| 19 | Ylang-Ylang III EO | Comoros | 7 | 13 |
| 20 | Ylang-Ylang III EO | Madagascar | 47 | 25 |
| *Apiaceae* | | | | | |
| 21 | Ajowan EO | *Trachyspermum ammi*  (L.) Sprague ex Turill | India | 0 | 0 |
| 22 | Angelica root EO | *Angelica archangelica* | Hungary | 1 | 4 |
| 23 | Angelica seed EO | USA | 8 | 3 |
| 24 | Anise seed EO | *Pimpinella anisum* | Egypt | 12 | 5 |
| 25 | Asafoetida EO | *Ferula assa-foetida* | India | 0 | 14 |
| 26 | Caraway seed EO | *Carum carvi* | Hungary | 0 | 1 |
| 27 | Carrot leaf absolute | *Daucus carota* | Egypt | 0 | 10 |
| 28 | Carrot seed EO | France | 38 | 0 |
| 29 | Carrot seed EO | India | 29 | 12 |
| 30 | Carrot seed EO | Egypt | 35 | 0 |
| 31 | Celery herb EO | *Apium graveolens* | Egypt | 0 | 0 |
| 32 | Celery herb EO | France | 18 | 0 |
| 33 | Celery herb EO | India | 0 | 6 |
| 34 | Celery herb EO | Egypt | 0 | 0 |
| 35 | Coriander leaves EO | *Coriandrum sativum* | Russia | 0 | 14 |
| 36 | Coriander leaves EO | Egypt | 1 | 0 |
| 37 | Coriander fruits EO | Egypt | 0 | 0 |
| 38 | Coriander fruits EO | Russia | 2 | 11 |
| 39 | Cumin EO | *Cuminum cyminum* | Egypt | 0 | 20 |
| 40 | Cumin oleoresin | Spain | 0 | 12 |
| 41 | Dill seed EO | *Anethum graveolens* | South Africa | 2 | 0 |
| 42 | Dill weed EO | Austria | 0 | 5 |
| 43 | Dill weed EO | Egypt | 0 | 5 |
| 44 | Dill weed EO | USA | 16 | 11 |
| 45 | Fennel bitter EO | *Foeniculum vulgare*  Mill. subsp. *vulgare* var.  *vulgare* | Spain | 0 | 0 |
| 46 | Fennel bitter EO | Egypt | 0 | 18 |
| 47 | Fennel sweet EO | *Foeniculum vulgare* Mill.  subsp. *vulgare* var. *dulce*  (Mill.) Batt | Australia | 24 | 24 |
| 48 | Fennel sweet EO | Hungary | 14 | 10 |
| 49 | Fennel sweet EO | Egypt | 0 | 15 |
| 50 | Galbanum EO | *Ferula gummosa* Boiss.  syn. *Ferula galbaniflua*  Boiss. et Buhse | Iran | 11 | 9 |
| 51 | Galbanum resinoid EO | *Ferula gummosa* Boiss.  syn. *Ferula galbaniflua*  Boiss. et Buhse | Iran | 78.2±0.8 | 11 |
| 52 | Lovage leaf EO | *Levisticum officinale* Koch | Hungary | 16 | 0 |
| 53 | Lovage root EO | Hungary | 76.5±1.9 | 39 |
| 54 | Parsley herb EO | *Petroselinum crispum*  (Mill.) Fuss  syn. *Petroselinum sativum* Hoffm | Australia | 42 | 0 |
| 55 | Parsley herb EO | Egypt | 49 | 18 |
| 56 | Parsley fruit EO | Egypt | 11 | 5 |
| 57 | Parsley fruit EO | Romania | 0 | 15 |
| *Aquifoliaceae* | | | | | |
| 58 | Mate absolute | *Ilex Paraguariensis* | Brazil | 0 | 5 |
| *Asparagaceae* | | | | | |
| 59 | Tuberose absolute | *Polianthes tuberosa* | India | 0 | 18 |
| *Asteraceae* | | | | | |
| 60 | Armoise EO | *Artemisia herba-alba* Asso. | North Africa | 0 | 14 |
| 61 | Artichoke absolute | *Cynara cardunculus* | Egypt | 39 | 41 |
| 62 | Blue tansy EO | *Tanacetum annuum* | Morocco | 7 | 0 |
| 63 | Calendula absolute | *Calendula officinalis* | Egypt | 21 | 41 |
| 64 | Chamomile blue EO | *Matricaria chamomilla* L.  syn. *Chamomilla recutita*  (L.) Rauschert | Egypt | 2 | 0 |
| 65 | Chamomile blue EO | Hungary | 18 | 0 |
| 66 | Chamomile Roman EO | *Chamaemelum nobile*  (L.) All.  syn. *Anthemis nobilis* L.  syn. *Ormenis nobilis* (L.)  J. Gay ex Coss. & Germ. | France | 0 | 0 |
| 67 | Chamomile wild EO | *Cladanthus mixtus* (L.)  Chevall.  syn. *Chamaemelum mixtum* (L.) All. | Morocco | 8 | 2 |
| 68 | Davana EO | *Artemisia pallens* Wall.  ex DC. | India | 25 | 15 |
| 69 | Everlasting EO | *Helichrysum italicum*  (Roth) G. Don  syn. *Helichrysum angustifolium* (Lam.) DC. | Spain | 24 | 9 |
| 70 | Goldenrod EO | *Solidago canadensis* | Canada | 4 | 8 |
| 71 | Irish lace (anis del monte) EO | *Tagetes filifolia* | Ecuador | 26 | 50 |
| 72 | Milfoil (yarrow) EO | *Achillea millefolium* | Bulgaria | 41 | 27 |
| 73 | Milfoil (yarrow) EO | Spain | 28 | 0 |
| 74 | Tagete EO | *Tagetes minuta* L.  syn. *Tagetes glandulifera* Schrank | Madagascar | 16 | 19 |
| 75 | Tagete EO | Mexico | 14 | 0 |
| 76 | Tagete EO | South Africa | 1 | 0 |
| 77 | Tagete EO | Zimbabwe | 59.1±1.7 | 0 |
| 78 | Tarragon EO | *Artemisia dracunculus* | USA | 0 | 15 |
| 79 | Tarragon EO | Spain | 0 | 8 |
| 80 | Wormwood herb EO | *Artemisia absinthium* | Russia | 0 | 0 |
| 81 | Wormwood herb EO | USA | 0 | 16 |
| *Betulaceae* | | | | | |
| 82 | Birch tar EO | *Betula pendula* Roth | France | 45 | 7 |
| *Brassicaceae* | | | | | |
| 83 | Rocket absolute | *Eruca vesicaria* | Egypt | 100±0.1 | 26 |
| *Burseraceae* | | | | | |
| 84 | Copal EO | *Protium amazonicum* | Ecuador | 18 | 21 |
| 85 | Elemi EO | *Canarium luzonicum*  (Blume) A. Gray | Phillipines | 33 | 31 |
| 86 | Elemi gum | *Canarium luzonicum*  (Blume) A. Gray | Phillipines | 97.1±1.9 | 17 |
| 87 | Myrrh EO | *Commiphora myrrha*  (Nees) Engl.  syn. *C. molmol* (Engl.)  Engl. ex Tschirch | Somalia | 68.2±0.9 | 19 |
| 88 | Myrrh resin | Somalia | 23 | 31 |
| 89 | Olibanum (frankincense) EO | *Boswellia sacra* Flueck.  syn. *Boswellia carteri*  Birdw. | Somalia | 21 | 20 |
| 90 | Opopanax EO | *Commiphora erythraea*  (Ehrenb.) Engl. | Somalia | 0 | 11 |
| 91 | Opopanax absolute | Somalia | 0 | 9 |
| 92 | Opopanax resinoid | Somalia | 0 | 15 |
| 93 | Palo Santo EO | *Bursera graveolens* | Ecuador | 27 | 34 |
| *Caprifoliaceae* | | | | | |
| 94 | Honeysuckle absolute | *Lonicera caprifolium* | Egypt | 0 | 14 |
| 95 | Spikenard EO | *Nardostachys grandiflora* DC.  syn. *Nardostachys jatamansi* (D.Don) DC. | India | 30 | 5 |
| *Caryophyllales* | | | | | |
| 96 | Carnation absolute | *Dianthus caryophyllus* | Egypt | 0 | 8 |
| *Cistaceae* | | | | | |
| 97 | Cistus complete EO | *Cistus ladanifer* | Spain | 34 | 22 |
| 98 | Cistus EO | Spain | 24 | 13 |
| 99 | Cistus absolute | Spain | 0 | 20 |
| 100 | Cistus SEV absolute | Spain | 42 | 11 |
| 101 | Labdacistus EO | Spain | 0 | 0 |
| 102 | Labdanum absolute | Spain | 48 | 20 |
| 103 | Labdanum gum refined | Spain | 73.7±2.2 | 0 |
| 104 | Labdanum resinoid | Spain | 33 | 12 |
| *Cupressaceae* | | | | | |
| 105 | Amber solid | *Juniperus Virginiana* | USA | 59.4±2.9 | 53.9±1.9 |
| 106 | Blue cypress EO | *Callitris intratropica* | Australia | 73.1±2.7 | 0 |
| 107 | Cade crude *ex-sabine* EO | *Juniperus phoenicea* | Spain | 94.0±0.6 | 31 |
| 108 | Cade, rectified EO | *Juniperus oxycedrus* | India | 34 | 4 |
| 109 | Cedarleaf EO | *Thuja occidentalis* | Canada | 0 | 10 |
| 110 | Cedarwood EO | *Cupressus funebris* | China | 56.7±4.5 | 0 |
| 111 | Cedarwood Texas EO | *Juniperus ashei* J. Buchholz | USA | 38 | 18 |
| 112 | Cedarwood Virginian EO | *Juniperus virginiana* | USA | 60.4±2.9 | 0 |
| 113 | Cypress EO | *Cupressus sempervirens* | Italy | 17 | 14 |
| 114 | Cypress absolute | Italy | 39 | 12 |
| 115 | Hinoki EO | *Chamaecyparis obtusa* | Japan | 0 | 18 |
| 116 | Juniper berry EO | *Juniperus communis* | North Macedonia | 0 | 6 |
| 117 | Juniper Berry CO2 | India | 35 | 0 |
| 118 | Siam wood EO | *Fokienia hodginsii* | Vietnam | 83.8±1.5 | 3 |
| 119 | Thuja EO | *Thuja plicata* | Central/East Europe | 0 | 7 |
| *Cyperaceae* | | | | | |
| 120 | Cypriol (Nagarmotha) EO | *Cyperus scariosus* R. Br. | India | 59.3±1.6 | 21 |
| *Dipterocarpaceae* | | | | | |
| 121 | Gurjun Balsam rectified (Copaene) | *Dipterocarpus spp* | Indonesia | 0 | 13 |
| *Ericaceae* | | | | | |
| 122 | Anthopogon EO | *Rhododendron anthopogon* | Nepal | 36 | 0 |
| 123 | Wintergreen EO | *Gaultheria procumbens* | Nepal | 0 | 26 |
| *Euphorbiaceae* | | | | | |
| 124 | Cascarilla bark EO | *Croton eluteria* (L.)  W. Wright  syn. *Clutia eluteria* L. | El Salvador | 30 | 2 |
| *Fabaceae* | | | | | |
| 125 | Broom absolute | *Spartium junceum* | Italy | 0 | 36 |
| 126 | Cabreuva red EO | *Myrocarpus fastigiatus* Allemao | Paraguay | 78.6±0.9 | 19 |
| 127 | Cassie absolute | *Acacia farnesiana* | Egypt | 0 | 7 |
| 128 | Copaiba balsam | *Copaifera officinalis* | Brazil | 10 | 8 |
| 129 | Fenugreek absolute | *Trigonella foenum graecum* | India | 0 | 2 |
| 130 | Mimosa absolute | *Acacia decurrens* var.*dealbata* | France | 38 | 5 |
| 131 | Peru balsam | *Myroxylon balsamum* var*.*  *pereirae* | El Salvador | 64.4±2.2 | 36 |
| 132 | Peru resinoid | El Salvador | 57.9±1.5 | 9 |
| 133 | Tolu resinoid | *Myroxylon balsamum* (L.) Harms | Venezuela | 77.3±4.6 | 15 |
| 134 | Tonka bean absolute | *Dipteryx odorata* | Brazil | 0 | 21 |
| *Geraniaceae* | | | | | |
| 135 | Geranium EO | *Pelargonium graveolens* | China | 0 | 0 |
| 136 | Geranium EO | Egypt | 0 | 10 |
| 137 | Geranium EO | Madagascar | 0 | 5 |
| 138 | Geranium EO | South Africa | 0 | 0 |
| 139 | Geranium Bourbon EO | Madagascar | 0 | 4 |
| *Grossulariaceae* | | | | | |
| 140 | Blackcurrant buds absolute | *Ribes nigrum* | France | 44 | 16 |
| *Iridaceae* | | | | | |
| 141 | Orris root absolute | *Iris pallida* | Italy | 13 | 0 |
| 142 | Orris root concentrate | France | 0 | 26 |
| *Lamiaceae* | | | | | |
| 143 | Basil cinnamon EO | *Ocimum basilicum ‘Cinnamon’* | Egypt | 7 | 3 |
| 144 | Basil holy EO | *Ocimum tenuiflorum* L.  syn. *Ocimum sanctum* L. | India | 19 | 7 |
| 145 | Basil lemon EO | *Ocimum x africanum* | Egypt | 32 | 0 |
| 146 | Basil oleoresin | *Ocimum basilicum* | India | 0 | 27 |
| 147 | Basil sweet (linalool) EO | Egypt | 23 | 0 |
| 148 | Basil sweet (linalool) EO | Thailand | 2 | 0 |
| 149 | Basil tropical (estragol) EO | Egypt | 11 | 18 |
| 150 | Basil tropical (estragol) EO | India | 0 | 15 |
| 151 | Basil tropical (estragol) EO | Thailand | 3 | 8 |
| 152 | Catnip (catmint) EO | *Nepeta cataria* | Canada | 21 | 0 |
| 153 | Hyssop EO | *Hyssopus officinalis* | Austria | 17 | 14 |
| 154 | Hyssop EO | Bulgaria | 3 | 18 |
| 155 | Lavandin EO | *Lavandula angustifolia* Mill. *× Lavandula latifolia* Medik. | France | 3 | 16 |
| 156 | Lavandin abrialis EO | France | 2 | 0 |
| 157 | Lavandin absolute | France | 0 | 8 |
| 158 | Lavandin grosso EO | France | 1 | 2 |
| 159 | Lavandin super EO | France | 0 | 0 |
| 160 | Lavender EO | *Lavandula angustifolia* Mill. | France | 15 | 5 |
| 161 | Lavender EO | Spain | 4 | 9 |
| 162 | Lavender fresh EO | Bulgaria | 2 | 13 |
| 163 | Lavender green absolute | France | 0 | 8 |
| 164 | Lavender organic EO | France | 0 | 7 |
| 165 | Lavender spike EO | *Lavandula latifolia* Medik. | France | 0 | 10 |
| 166 | Lavender spike absolute | France | 33 | 10 |
| 167 | Spanish wild marjoram EO | *Thymus mastichina* | Spain | 0 | 16 |
| 168 | Marjoram sweet EO | *Origanum majorana* | Morocco | 0 | 12 |
| 169 | Lemon balm EO | *Melissa officinalis* | Bulgaria | 47 | 14 |
| 170 | Mentha citrata EO | *Mentha aquatica* L. var. *citrata* (Ehrh.) Fresen.  syn. *Mentha citrata* Ehrh. | India | 0 | 0 |
| 171 | Mentha arvensis EO | *Mentha canadensis* L.  syn. *Mentha arvensis* var. *piperascens* Malinv. ex Holmes  syn. *Mentha arvensis* var. *glabrata* (Benth.) Fernald | China | 0 | 9 |
| 172 | Mentha arvensis EO | India | 0 | 12 |
| 173 | Mentha arvensis partially dementholized EO | India | 0 | 17 |
| 174 | Pennyroyal EO | *Mentha pulegium* | Morocco | 7 | 13 |
| 175 | Peppermint EO | *Mentha* x *piperita* | China | 0 | 22 |
| 176 | Peppermint Yakima EO | USA | 18 | 0 |
| 177 | Perilla EO | *Perilla frutescens* | China | 32 | 0 |
| 178 | Spearmint EO | *Mentha* spicata L.  syn. *Mentha viridis* L. var. *crispa* Benth. | China | 0 | 2 |
| 179 | Origanum Spanish type EO | *Thymbra capitata*  (L.) Cav.  syn. *Thymus capitatus* (L.) Hoffmanns. & Link | Spain | 22 | 8 |
| 180 | Patchouli EO | *Pogostemon cablin* (Blanco) Benth.  syn. *Mentha cablin* Blanco | Indonesia | 63.5±2.0 | 12 |
| 181 | Patchouli DM Sulawesi Iron free EO | Indonesia | 11 | 10 |
| 182 | Patchouli light EO | Indonesia | 27 | 4 |
| 183 | Patchouli molecular distillation EO | Indonesia | 11 | 11 |
| 184 | Patchouli Super Dark EO | Indonesia | 45 | 26 |
| 185 | Rosemary EO | *Rosmarinus officinalis* | Spain | 0 | 11 |
| 186 | Sage clary EO | *Salvia sclarea* L.  syn. *Salvia sclarea* var. *turkestaniana* (Noter) Mottet | Egypt | 33 | 0 |
| 187 | Sage clary EO | Spain | 0 | 3 |
| 188 | Sage Dalmatian EO | *Salvia officinalis* | Hungary | 0 | 7 |
| 189 | Sage, Spanish type EO | *Salvia officinalis* subsp. *lavandulifolia* (Vahl) Gams  syn. *Salvia lavandulifolia* Vahl | Spain | 0 | 4 |
| 190 | Savory summer EO | *Satureja hortensis* | Egypt | 23 | 0 |
| 191 | Savory summer EO | Hungary | 19 | 7 |
| 192 | Savory winter EO | *Satureja montana* | Egypt | 15 | 0 |
| 193 | Thyme grey absolute | *Thymus zygis* | Spain | 13 | 8 |
| 194 | Thyme var thymol EO | Hungary | 16 | 5 |
| 195 | Thyme red EO | Spain | 10 | 8 |
| 196 | Thyme red absolute | Spain | 0 | 13 |
| 197 | Thyme red oleoresin | *Thymus vulgaris* | Turkey | 0 | 28 |
| 198 | Thyme white EO | France | 2 | 4 |
| *Lauraceae* | | | | | |
| 199 | Camphor tree (camphor laurel) EO | *Cinnamomum camphora* (L.) J. Presl  syn. *Laurus camphora* L. | Japan | 0 | 0 |
| 200 | Cassia, Chinese type EO | *Cinnamomum cassia* (L.) J. Presl  syn. *Cinnamomum aromaticum* Nees | China | 35 | 8 |
| 201 | Cassia, Chinese type CO2 | Indonesia | 43 | 8 |
| 202 | Cinnamon bark, Sri Lanka type EO | *Cinnamomum verum*  J. Presl  syn. *Cinnamomum zeylanicum* Blume | Indonesia | 15 | 0 |
| 203 | Cinnamon leaf, Sri Lanka type EO | Indonesia | 0 | 0 |
| 204 | Ho (Shiu) wood EO | *Cinnamomum camphora* linaloliferum | China | 0 | 19 |
| 205 | Ishpingo EO | *Ocotea quixos* | Ecuador | 39 | 38 |
| 206 | Litsea cubeba EO | *Litsea cubeba* (Lour.) Pers. | China | 16 | 12 |
| 207 | Massoia bark EO | *Cryptocarya massoy* (Oken) Kosterm. | Indonesia | 6 | 4 |
| 208 | Ocotea cymbarum EO | *Ocotea cymbarum* | China | 11 | 0 |
| 209 | Ravensara EO | *Cryptocarya agathophylla* van der Werff  syn. *Ravensara aromatica* Sonn. | Madagascar | 0 | 22 |
| 210 | Rosewood, Brazilian type EO | *Aniba rosaeodora* Ducke  *Aniba parviflora* (Meissn.) Mez. | Brazil | 23 | 1 |
| 211 | Sassafras EO | *Sassafras albidum* | Taiwan | 14 | 0 |
| 212 | Sugandha kokila EO | *Cinnamomum glaucescens* | India | 17 | 1 |
| 213 | Sweet bay EO | *Laurus nobilis* | Spain | 0 | 11 |
| 214 | Sweet bay oleoresin | Turkey | 15 | 13 |
| *Magnoliaceae* | | | | | |
| 215 | Magnolia champaca flower EO | *Michelia × alba* DC | Thailand | 39 | 0 |
| 216 | Magnolia champaca leaf EO | Thailand | 17 | 1 |
| *Malvaceae* | | | | | |
| 217 | Cocoa seed absolute | *Theobroma cacao* | Tanzania | 0 | 30 |
| 218 | Cocoa butter CO2 | Indonesia | 0 | 36 |
| *Meliaceae* | | | | | |
| 219 | Neem oil | *Azadirachta indica* | India | 6 | 18 |
| *Myristicaceae* | | | | | |
| 220 | Mace EO | *Myristica fragrans* Houtt. | Indonesia | 0 | 0 |
| 221 | Nutmeg EO | India | 0 | 7 |
| 222 | Nutmeg EO | Indonesia | 0 | 11 |
| *Myrtaceae* | | | | | |
| 223 | Bay EO | *Pimenta racemosa* (Mill.) J.W. Moore | India | 34 | 1 |
| 224 | Blue mallee EO | *Eucalyptus polybractea* R. T. Baker | Australia | 4 | 17 |
| 225 | Cajeput EO | *Melaleuca leucadendra* | Indonesia | 0 | 2 |
| 226 | Clove bud EO | *Syzygium aromaticum* (L.) Merr. & L. M. Perry  syn. *Eugenia caryophyllus* (Spreng.) Bullock & S. G. Harrison | Madagascar | 40 | 20 |
| 227 | Clove leaf EO | Madagascar | 46 | 24 |
| 228 | Clove stem dark EO | Indonesia | 33 | 31 |
| 229 | Eucalyptus citriodiora (lemon-scented gum) EO | *Corymbia citriodora* (Hook.) K.D. Hill & L.A.S. Johnson  syn. *Eucalyptus citriodora* Hook. | Brazil | 50.0±2.5 | 5 |
| 230 | Eucalyptus globulus EO | *Eucalyptus globulus* Labill. | China | 0 | 5 |
| 231 | Eucalyptus kochii EO | *Eucalyptus kochii* | Australia | 0 | 1 |
| 232 | Eucalyptus radiata EO | *Eucalyptus radiata* Sieber ex DC | South Africa | 0 | 0 |
| 233 | Eucalyptus smithii EO | *Eucalyptus smithii* | South Africa | 0 | 10 |
| 234 | Kānuka EO | *Kunzea ericoides*  (A. Rich.) Joy Thomps.  syn. *Leptospermum ericoides* A. Rich. | New Zealand | 0 | 7 |
| 235 | Lemon Myrtle EO | *Backhousia citriodora* F. Muell. | Australia | 0 | 25 |
| 236 | Lemon scented tea tree EO | *Leptospermum petersonii* F. M. Bailey  syn. *Leptospermum citratum* Challinor, Cheel & Penfold | South Africa | 0 | 1 |
| 237 | Mānuka EO | *Leptospermum scoparium* J. R. Forst et G. Forst | Australia | 17 | 15 |
| 238 | Mānuka (MBTK 5+) EO | New Zealand | 16 | 5 |
| 239 | Mānuka (MBTK 20+) EO | New Zealand | 9 | 6 |
| 240 | Mānuka (MBTK 25+) EO | New Zealand | 7 | 33 |
| 241 | Melaleuca,  terpinen-4-ol type (tea tree) EO | *Melaleuca alternifolia* (Maiden & Betche) Cheel  syn. *Melaleuca linariifolia* Sm. | Australia | 0 | 0 |
| 242 | Melaleuca,  terpinen-4-ol type (tea tree) EO | South Africa | 0 | 5 |
| 243 | Melaleuca,  terpinen-4-ol type (tea tree) EO | China | 5 | 26 |
| 244 | Myrtle EO | *Myrtus communis* | Tunisia | 0 | 25 |
| 245 | Niaouli EO | *Melaleuca quinquenervia* (Cav.) S.T. Blake | Madagascar | 0 | 10 |
| 246 | Pimento berry EO | *Pimenta dioica* (L.) Merr. | Jamaica | 0 | 11 |
| 247 | Pimento leaf EO | Jamaica | 0 | 6 |
| 248 | Rosalina EO | *Melaleuca ericifolia* | Australia | 0 | 0 |
| 249 | Tick Bush EO | *Kunzea ambigua* (Sm.) Druce  syn. *Leptospermum ambiguum* Sm. | Australia | 16 | 4 |
| *Nymphaeaceae* | | | | | |
| 250 | Water lily absolute | *Nymphaea caerulea* | Sri Lanka | 0 | 13 |
| *Oleaceae* | | | | | |
| 251 | Jasmine EO | *Jasminum grandiflorum* | Egypt | 1 | 17 |
| 252 | Jasmine absolute | Egypt | 0 | 25 |
| 253 | Jasmine absolute | India | 0 | 16 |
| 254 | Jasmine concrete | Egypt | 0 | 28 |
| 255 | Olive leaf absolute | *Olea europea* | Egypt | 0 | 10 |
| 256 | Osmanthus absolute | *Osmanthus fragrans* | China | 0 | 7 |
| *Parmeliaceae* | | | | | |
| 257 | Oakmoss absolute | *Evernia Prunastri* | North Macedonia | 71.4±3.1 | 16 |
| 258 | Oakmoss resinoid | France | 28 | 11 |
| 259 | Treemoss absolute | *Pseudevernia furfuracea* | France | 12 | 18 |
| *Pinaceae* | | | | | |
| 260 | Black pine EO | *Pinus nigra* | Austria | 37 | 10 |
| 261 | Cedarwood atlas EO | *Cedrus atlantica* (Endl.) G. Manetti ex Carrière | Morocco | 54.4±4.6 | 1 |
| 262 | Cedarwood Himalaya EO | *Cedrus deodara* (Roxb. ex D. Don) G. Don | India | 5 | 15 |
| 263 | Fir needle Canadian EO | *Abies balsamea* (L.) Mill. | Canada | 3 | 21 |
| 264 | Fir needle Canadian EO | China | 0 | 0 |
| 265 | Fir balsam Canadian absolute | Canada | 37 | 0 |
| 266 | Fir balsam Canadian concrete | Canada | 35 | 0 |
| 267 | Fir needle Siberian EO | *Abies sibrica* Ledeb. | Russia | 21 | 26 |
| 268 | Hemlock, spruce EO | *Tsuga canadensis* L. Carriere | Canada | 0 | 7 |
| 269 | Longleaf pine EO | *Pinus palustris* | Canada | 0 | 22 |
| 270 | Pine pumilio EO | *Pinus pumilio* | Germany | 31 | 0 |
| 271 | Scots pine EO | *Pinus sylvestris* | Bulgaria | 0 | 43 |
| 272 | Silver fir cones EO | *Abies alba* Mill. | Austria | 37 | 16 |
| 273 | Spruce black EO | *Picea mariana* | Canada | 3 | 18 |
| 274 | Spruce absolute | *Picea glauca/Picea mariana* | Canada | 52.8±1.8 | 0 |
| 275 | Swiss pine EO | *Pinus cembra* | Austria | 0 | 2 |
| 276 | Turpentine EO | *Pinus pinaster* Aiton | Austria | 40 | 14 |
| *Piperaceae* | | | | | |
| 277 | Cubeb EO | *Piper cubeba* L.f. | Singapore | 43 | 0 |
| 278 | Cubeb CO2 | Indonesia | 47 | 24 |
| 279 | Pepper black oleoresin 40/20 | *Piper nigrum* | India | 16 | 46 |
| 280 | Pepper black EO | India | 0 | 5 |
| 281 | Pepper black CO2 | India | 0 | 36 |
| 282 | Spiked pepper (matico) EO | *Piper aduncum* | Ecuador | 18 | 50 |
| *Poaceae* | | | | | |
| 283 | Bran absolute | *Triticum vulgare* | France | 0 | 25 |
| 284 | Bran concrete | Morocco | 0 | 26 |
| 285 | Citronella, Sri Lanka type EO | *Cymbopogon nardus* (L.) W. Watson var. *lenabatu* Stapf. | Sri Lanka | 51.3±1.4 | 11 |
| 286 | Citronella, Java type EO | *Cymbopogon winterianus* Jowitt | Java Indonesia | 29 | 14 |
| 287 | Citronella organic, Java type EO | Paraguay | 31 | 16 |
| 288 | Citronella, Java type EO | China | 38 | 8 |
| 289 | Gingergrass EO | *Cymbopogon martinii* (Roxb.) W. Watson var. *sofia* | Indonesia | 21 | 33 |
| 290 | Hay absolute | *Lolium perenne* | France | 1 | 13 |
| 291 | Lemongrass West Indian EO | *Cymbopogon citratus* (DC.) Stapf. | China | 2 | 6 |
| 292 | Lemongrass EO | *Cymbopogon flexuosus* (Nees ex Steud.) W. Watson | India | 3 | 4 |
| 293 | Palmarosa EO | *Cymbopogon martini* (Roxb.) W. Watsonvar.  *motia* | Indonesia | 22 | 9 |
| 294 | Vetiver EO | *Chrysopogon zizanioides* (L.) Roberty  syn. *Vetiveria zizanioides* (L.) Nash | Brazil | 66.0±7.2 | 7 |
| 295 | Vetiver EO | Haiti | 74.2±4.3 | 0 |
| 296 | Vetiver EO | Java Indonesia | 65.9±4.4 | 35 |
| 297 | Vetiver CO2 | India | 0 | 3 |
| *Ranunculaceae* | | | | | |
| 298 | Black cumin oil | *Nigella sativa* | India | 0 | 0 |
| 299 | Black cumin CO2 | India | 2 | 25 |
| *Rosaceae* | | | | | |
| 300 | Rose EO | *Rosa x damascena* Mill. | Bulgaria | 26 | 0 |
| 301 | Rose EO | Turkey | 25 | 0 |
| 302 | Rose absolute | Bulgaria | 43 | 0 |
| 303 | Rose absolute | Egypt | 31 | 9 |
| 304 | Rose absolute | Morocco | 26 | 0 |
| 305 | Rose cabbage EO | *Rosa centifolia* | Egypt | 6 | 17 |
| 306 | Rose cabbage absolute | Egypt | 0 | 13 |
| 307 | Rose cabbage leaves absolute | Egypt | 0 | 19 |
| 309 | Rose cabbage concrete | Egypt | 0 | 6 |
| 310 | Strawberry leaf absolute | *Fragaria x ananassa* | Egypt | 11 | 6 |
| *Rubiaceae* | | | | | |
| 311 | Coffee arabica absolute | *Coffea arabica* | Indonesia | 0 | 3 |
| 312 | Coffee arabica CO2 | India | 0 | 19 |
| 313 | Coffee Robusta CO2 | *Coffea canephora* | India | 0 | 1 |
| *Rutaceae* | | | | | |
| 314 | Amyris EO | *Amyris balsamifera* | Haiti | 57.9±4.9 | 16 |
| 315 | Bergamot EO | *Citrus bergamia* Risso & Poit.  syn. *Citrus aurantium* L. subsp. *bergamia* (Risso & Poit.) Wight & Arn. ex Engl. | Italy | 8 | 0 |
| 316 | Buchu leaf EO | *Agathosma betulina* (P.J. Bergius) Pillans | South Africa | 0 | 0 |
| 317 | Buchu leaf EO | *Agathosma crenulata* | South Africa | 4 | 0 |
| 318 | Citrus hystrix (kaffir lime) EO | *Citrus hystrix* DC.  syn. *Citrus torosa* Blanco | China | 0 | 0 |
| 319 | Clementine mandarin EO | *Citrus clementina* hort. ex Tanaca  syn. *Citrus deliciosa* Ten. *x Citrus sinensis* (L.) Osbeck | Spain | 0 | 16 |
| 320 | Grapefruit Pink EO | *Citrus x paradisi* Macfad. | USA | 0 | 5 |
| 321 | Grapefruit red EO | USA | 4 | 20 |
| 322 | Grapefruit White  EO | USA | 4 | 7 |
| 323 | Lemon EO | *Citrus limon* (L.) Osbeck | Italy | 0 | 12 |
| 324 | Lemon EO | California USA | 0 | 0 |
| 325 | Lemon EO | Argentina | 0 | 0 |
| 326 | Lemon EO | Spain | 3 | 12 |
| 327 | Lemon sfumatrice EO | Italy | 0 | 1 |
| 328 | Lime EO | *Citrus aurantifolia* (Christm.) Swingle | India | 0 | 0 |
| 329 | Lime distilled EO | Mexico | 0 | 9 |
| 330 | Lime expressed EO | Mexico | 0 | 25 |
| 331 | Mandarin EO | *Citrus reticulata* Blanco  syn. *Citrus nobilis* Andrews | Italy | 0 | 10 |
| 332 | Mandarin green EO | Brazil | 0 | 1 |
| 333 | Mandarin red EO | Argentina | 0 | 0 |
| 334 | Neroli EO | *Citrus aurantium* L.  syn. *Citrus amara* Link  syn. *Citrus* bigaradia Loisel  syn. *Citrus vulgaris* Risso | Morocco | 24 | 2 |
| 335 | Neroli EO | Egypt | 14 | 12 |
| 336 | Neroli BdN EO | Egypt | 15 | 0 |
| 337 | Orange bitter, blossom hydrolate absolute | Egypt | 27 | 22 |
| 338 | Orange bitter, blossom hydrolate absolute | Morocco | 29 | 22 |
| 339 | Orange bitter, distilled EO | Egypt | 0 | 0 |
| 340 | Orange bitter EO | Brazil | 0 | 9 |
| 341 | Orange blood EO | *Citrus sinensis* (L.) Osbeck | Italy | 0 | 5 |
| 342 | Orange flower absolute | *Citrus aurantium* L.  syn. *Citrus amara* Link  syn. *Citrus* bigaradia Loisel  syn. *Citrus vulgaris* Risso | Tunisia | 13 | 5 |
| 343 | Orange flower concrete | Morocco | 47 | 35 |
| 344 | Orange sweet (high aldehyde) EO | *Citrus sinensis* (L.) Osbeck | Brazil | 0 | 5 |
| 345 | Orange sweet EO | Brazil | 3 | 14 |
| 346 | Orange sweet EO | USA | 0 | 20 |
| 347 | Orange sweet EO | Valencia Spain | 0 | 7 |
| 348 | Orange sweet 5-fold EO | Brazil | 0 | 10 |
| 349 | Petitgrain bigarade EO | *Citrus aurantium* L.  syn. *Citrus amara* Link  syn. *Citrus* bigaradia Loisel  syn. *Citrus vulgaris* Risso | Egypt | 15 | 9 |
| 350 | Petitgrain bigarade *sur fleurs* EO | Egypt | 0 | 14 |
| 351 | Petitgrain bigarade EO | Paraguay | 5 | 15 |
| 352 | Petitgrain bigarade EO | Tunisia | 0 | 4 |
| 353 | Petitgrain citrus hystrix (kaffir lime) EO | *Citrus hystrix* DC.  syn. *Citrus torosa* Blanco | China | 50 | 0 |
| 354 | Petitgrain key lime EO | *Citrus aurantifolia* (Christm.) Swingle | Egypt | 34 | 8 |
| 355 | Petitgrain lemon EO | *Citrus limon* (L.) Osbeck | Spain | 0 | 10 |
| 356 | Petitgrain mandarin EO | *Citrus reticulata* Blanco  syn. *Citrus nobilis* Andrews | Egypt, Spain | 85.3±6.2 | 100 |
| 357 | Petitgrain mandarin light fraction EO | Egypt | 69.7±4.5 | 100 |
| 358 | Petitgrain mandarin heavy fraction EO | Egypt | 87.3±4.4 | 100 |
| 359 | Rue EO | *Ruta graveolens* | Spain | 0 | 20 |
| 360 | Sichuan pepper (Limonella) EO | *Zanthoxylum limonella* Alston  syn. *Zanthoxylum rhetsa* (Roxb.) DC. | Mexico | 19 | 3 |
| 361 | Tangerine EO | *Citrus tangerina* | USA | 0 | 4 |
| 362 | Tangerine EO | Spain | 0 | 12 |
| 363 | Winged prickly ash EO | *Zanthoxylum armatum* | India | 2 | 13 |
| *Santalaceae* | | | | | |
| 364 | Australian sandalwood EO | *Santalum spicatum* (R.Br.) A. DC  syn. *Eucarya spicata* (R.Br.) Sprag et Summ. | Australia | 67.0±5.0 | 25 |
| 365 | Sandalwood EO | *Santalum album* | India | 1 | 7 |
| 366 | Sandalwood EO | *Santalum austro-caledonicum* | New Caledonia | 70.9±3.3 | 4 |
| *Schisandraceae* | | | | | |
| 367 | Star anise, Chinese type EO | *Illicium verum* Hook. f. | China | 8 | 0 |
| 368 | Star anise, Chinese type CO2 | India | 0 | 7 |
| *Scrophulariaceae* | | | | | |
| 369 | False sandalwood (buddawood) EO | *Eremophila mitchellii* Benth. | Australia | 40 | 17 |
| *Solanaceae* | | | | | |
| 370 | Capsicum CO2 | *Capsicum annuum* var. *annuum* | India | 16 | 28 |
| 371 | Capsicum oleoresin 1.000.000 SHU | India | 0 | 16 |
| 372 | Paprika oleoresin 40.000 CU | *Capsicum annuum* | India | 3 | 49 |
| 373 | Paprika oleoresin 60.000 CU | India | 12 | 55.5±2.8 |
| 374 | Paprika oleoresin 80.000 CU | India | 19 | 45 |
| 375 | Tobacco absolute | *Nicotiana tabacum* | France | 0 | 20 |
| 376 | Tomato leaf abs | *Lycopersicum esculentum* | Egypt | 0 | 19 |
| *Styracaceae* | | | | | |
| 377 | Benzoin Siam resinoid | *Styrax tonkinensis* | Laos | 99.7±0.4 | 17 |
| 378 | Benzoin Sumatra resinoid | *Styrax benzoin* | Indonesia | 72.9±2.5 | 9 |
| *Tropaeolaceae* | | | | | |
| 379 | Nasturtium absolute | *Tropaeolum nasturtium* | Egypt | 67.8±2.0 | 25 |
| *Urticaceae* | | | | | |
| 380 | Nettle abs | *Urtica urens* | Egypt | 67.1±5.8 | 25 |
| *Valerianaceae* | | | | | |
| 381 | Valerian EO | *Valeriana officinalis* | China | 24 | 0 |
| *Verbenaceae* | | | | | |
| 382 | Lantana EO | *Lantana camara* | Egypt | 34 | 32 |
| 383 | Lemon verbena EO | *Aloysia citriodora* Palau  syn. *Aloysia triphylla* (L'Hér.) Britton  syn. *Lippia triphylla* (L'Hér.) Kuntze  syn. *Verbena triphylla* L'Hér.  syn. *Lippia citriodora* (Palau) Kunth | Morocco | 6 | 18 |
| *Violaceae* | | | | | |
| 384 | Violet leaf absolute | *Viola odorata* | France | 29 | 26 |
| *Vitaceae* | | | | | |
| 385 | Cognac green EO | *Vitis vinifera* | Austria | 0 | 10 |
| 386 | Cognac white EO | USA | 0 | 0 |
| *Zingiberaceae* | | | | | |
| 387 | Cardamom EO | *Elettaria cardamomum* (L.) Maton | India | 2 | 0 |
| 388 | Cardamom EO | Indonesia | 12 | 22 |
| 389 | Cardamom green CO2 | India | 0 | 14 |
| 390 | Ginger CO2 | *Zingiber officinale* Roscoe | India | 14 | 15 |
| 391 | Ginger CO2 | China | 22 | 2 |
| 392 | Ginger EO | Jamaica | 20 | 10 |
| 393 | Ginger EO | China | 23 | 16 |
| 394 | Ginger EO | Nigeria | 21 | 16 |
| 395 | Lesser galangal EO | *Alpinia officinarum* | China | 0 | 16 |
| 396 | Phlai EO | *Zingiber montanum* (J. König) Theilade  syn. *Zingiber cassumunar* Roxb. | Thailand | 4 | 6 |
| 397 | Turmeric EO | *Curcuma longa* | China | 63.8±2.1 | 6 |
| 398 | Turmeric CO2 | India | 33 | 5 |
| 399 | Turmeric oleoresin | India | 89.0±0.7 | 64.3±1.6 |
| *Zygophyllaceae* | | | | | |
| 400 | Guaiacwood EO | *Bulnesia sarmientoi* | Paraguay | 72.0±5.1 | 15 |

# **S2. IC50­ graphs for petitgrain mandarin (PM) essential oil and DMA**



Fig. S1. IC50 graphs (PLpro) for petitgrain mandarin (PM) essential oil and dimethyl anthranilate (DMA)