



INDONESIAN Essential Oils Catalogue



MINISTRY OF AGRICULTURE
REPUBLIC OF INDONESIA



Essential Oil Container of 200 Kg



633.85

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MINISTRY OF AGRICULTURE

INDONESIAN Essential Oils Catalogue



FOREWORD

To promote Indonesian agricultural products to the world market and raise foreign exchange from export of agricultural products, Directorate of International Marketing Directorate General of Processing and Marketing for Agricultural Product carried out missions dealing with multilateral, regional and bilateral cooperation with related countries or international government organization. Aside from that, also actively involve in facilitating Indonesian farmers and private companies to joint international exhibition of agricultural products in many countries.

This book explains about some agricultural products which are produced in provinces of Indonesia. It shows some figures, production centers, type of products and list of companies dealing in those products, list of contact person and addresses of Agricultural Attache. Information written in this book are quoted from many sources. Therefore we would like to convey appreciation to whom that published those information publicly.

In the period of first quarter of 2008 we produced 9 books, namely: 1) Indonesian Tea Catalogue; 2) Indonesian Cocoa Catalogue; 3) Indonesian Coffee Catalogue; 4) Indonesian Flower and Ornamental Plant Catalogue; 5) Indonesian Spices and Herbal Products Catalogue; 6) Indonesian Fruits and Vegetables Catalogue; 7) Indonesian Essential Oil Catalogue; 8) Indonesian Livestock Catalogue; and 9) Indonesian Foliage Plant Catalogue

We welcome critics and suggestion for further improvement, should you have any inquires please do not hesitate to contact our office.

Best Regards,



Dr. Ir. Zaenal Bachruddin, M. Sc
Director General of Processing and
Marketing of Agricultural Products
Ministry of Agriculture



Message from Minister of Agriculture Republic of Indonesia



Essential oil is a big group of plants oil, and is well-known as ethereal, essential, fly or aromatic oil. If evaporates, it gives specific and special odor, and also recognized as a bit of perfume. Many benefits given by essential oil are mostly for health and beauty. Promoting digestion system, accelerating circulation of the blood, controlling asthma and managing menopause are some of the examples. It also can manage sensitive skin, treat or reduce acnes and handle baby blue syndrome, too.

Recently, there are 200 plants produced essential oil in the world. As many as 35 percents of the products have been released in the market. Indonesia has approximately 40 plants that contain such as oil and 12 species of them are classified as export commodity. Those plants are as the following: patchouli (*Pogostemon hortensis*), lemon grass (*Andropogon citratus*), nutmeg (*Myristica fragrans*), ylang-ylang (*Cananga odorata*), ginger (*Zingiber officinale*), clove (*Syzygium aromaticum*), Jasmine (*Jasminum Sambac*), Indian Sandalwood (*Santalum Album*) and nardus grass (*Cymbopogon nardus*).

Nowadays, Indonesia is being able to produce 800 tones of patchouli oil a year and 25 tones of ylang-ylang oil. Lemon grass oil is 30 tones, while nardus grass reaches 500 tones of production and clove oil is distilled up to 2,500 tones a year. This condition, in fact, leads Indonesia to become the biggest essential oil producing country in the world.

Furthermore, we would like to present this catalogue and strongly convince that Indonesia is one of essential oil producers in the world. We are not only the biggest, but also the best. Don't hesitate to have a good relation and to develop essential oil business with essential oil companies in Indonesia.

Eventually, I wish you having a tremendous reading experience and enjoy the artless of the Indonesian essential oil.

Jakarta, December 2008


Dr. Ir. Anton Apriyantono, MS.
Minister of Agriculture
Republic of Indonesia

The official stamp of the Indonesian Ministry of Agriculture is a circular seal. It features a central emblem with a stylized plant. The text "KEMENTERIAN PERTANIAN" is written in a circle around the emblem. Above the emblem, the text "ASTAKAN SEKRETARIAT JENDERAL" is visible. There is a small star at the bottom right of the seal.

TABLE of CONTENT

FOREWORD	ii
TABLE OF CONTENT	iv
INDONESIAN ESSENTIAL OIL	1
ASSOCIATION LIST	21
COMPANY LIST	22
INDONESIAN ATTACHE OF AGRICULTURE	28

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INDONESIAN ESSENTIAL OILS

INTRODUCTION OF ESSENTIAL OILS

Essential oils have been well known around the world having multi benefits such as for fragrance composition, food flavoring, and medicines. People in Indonesia even have been familiar with essential oils. At present, Indonesia becomes one of essential oils producers in the world. There are approximately 40 kinds of essential oils produced and extracted from many different plants. The typical plants of Indonesia of which essential oils are extracted are ylang-ylang, jasmine, santalum, etc.

These days, the extraction technology of essential oils is still carried through steam distillation, maceration, and pressing. The parts of plant used to produce essential oil are varied, not from one part only. The result of distillation process will generate different yields for different kinds of plants. Indonesia has many kinds of essential oils that are not produced by other essential oil producers in the world.



CARDAMOM (*Elettaria cardamomum*)

Cardamom which is notably called as grains of paradise is mostly found in low mountains area, humid soil, high rainfall, and always cloudy on the altitude of 200—1.000 meters above sea level (asl). It is also grows wild in primary forests, teak wood forests, and under the shade of forest trees.

Cardamom is mostly spread in Indonesian islands particularly in Java and South Sumatera. The mostly cultivated cardamoms in Indonesia are the types of *Amomum kapulaga*, *Amomum cardamomum* and *Ellectaria cardomamum*. All of



those three varieties can be easily differed based on their morphology.

Cardamom is one of distillable plants that generate essential oil. The oil of cardamom is notable as cardamom oil and it is used extensively as stimulant, lozenge, dye, and flavor. The oil generates 5 substances that produce various fragrances such as the odor of camphor, lime, and eucalyptus oil. The five substances are borneol, alpha-terpinylacetate, limonene, alpha terpinene, and cineole. The parts of cardamom used in the making of essential oil are the fruit and seeds. Mature fruit can be plucked once they are 30—50 days old.



CINNAMON (*Cinnamomum burmannii*)

Other local names for cinnamon are Holim Manis, Keningar, Kanyengar, Manis Jangan, Kulit Manis, Ki Amis, Medang Siak-siak, Medang Kulil Manih, Huru Mentek, Pa Ungdinga, Onto, Kanel-boom.

Cinnamon thrives in mountainous areas optimally in between 500 - 1200 m altitude. It has ovate-oblong, green leaves and red when they are young leaves. The usual height of cinnamon tree is up to 15 m.



Cinnamon Oil

In Indonesia, the main producing area of cinnamon are in West Sumatera, North Sumatera, Jambi, Central Java and East Java, and South Kalimantan. Indonesian cinnamons are exported to USA, Singapore, Canada, and Japan.

The characteristics of cinnamon oil having good standard quality according to Essential Oils Association (EOA) of the United States are:

- Colour : yellow
- Appearance : colourless liquid
- Aroma : cinnamon aroma and burning pungent taste
- Density in 25°C : 1,010 to 1,030
- Optical rotation : 0 to 2
- Refractive index 20°C : 1.5730 to 1.5910
- Sinamic aldehyde content : 55% to 78%
- Solubility in alcohol : soluble in 3 volumes

Cinnamon oil is usually packed in glass bottles,



Cinnamon Powder

aluminium containers or drum coated with good quality white tin.

Sources

The botanical source of Cinnamon Bark Oil is *Cinnamomum Casea*.

Appearance

Yellow

Physico-chemical

Specific gravity 25 oC : 1.010 - 1.030

Refraction Index 25 oC : 1.570 - 1.590

Optical Rotation : 0o - (-2o)

Cinnamon aldehyde content : 55 - 78 %

Solubility

Solubility in 70% ethanol

Soluble 1:3 clear, further clear

Packaging

Cinnamon Bark oil is available in 25 kg metal drum.

CITRONELLA GRASS (*Cytopogon nardus* L.)

Citronella grass is a plant indigenous to Sri Lanka. In Indonesia, the plant has undergone a development in terms of cultivation, which is signified by the occurrence of some varieties having good yield of essential oils.

Citronella grass is of Gramineae family having two notable varieties in Indonesia; mahapengiri



Citronella Grass Oil

and lenabatu. The former has a better quality of essential oil than the later. Another difference is by the age of six months the leaves growth of mahapengiri is crouched, while lenabatu will have thicker and more erect leaves. In addition, lenabatu is still able to grow in less fertile land.

In general, citronella grass can grow on the altitude of up to 4.000 m asl, but it is ideally grown in fertile alluvial land on the altitude of up to 2.500 m asl and temperate region with well distributed rainfall all year long. The ideal pH range is 6,0—7,5. Citronella grass prefers sufficient sunlight. Accordingly, it will grow well under shelter.

The oil is extensively used in perfumery, pharmacy, and cosmetics industries. The quality of essential oil is determined from its two major components; citronellol and geraniol. The several



quality standard of Java citronella oil according to Essential Oils Association of USA (EOA) are as follow:

- Light yellow to brownish, semi-fluid, and aldehyde odor
- Geraniol content is 85—97%
- Citronellol content is 30—40%
- Solubility in 80% alcohol

Citronella oil should be supplied in glass bottles, aluminium containers, white tin plate containers, galvanic iron containers, or iron containers coated with enamel.



Citronella Grass



Citronella Grass Root

Sources

The Botanical source of Citronella Oil is Cymbopogon Nardus

Appearance

Colourless to pale yellow oily liquid

Physico-chemical

Specific gravity at 25 oC : 0.876 -0.919

Refraction Index at 25 oC : 1.488 - 1.495 Optical

Rotation : 20 to -30

(Rarely +20 to -50)

Geraniol Total (b/b) : 85%

Citronellal (b/b) : 35%

Mineral oil : Negative

Fatty oil : Negative

Alcohol extra amount : Negative

Solubilty

Solubility in 80% ethanol 1:2 clear, further clear

Packaging

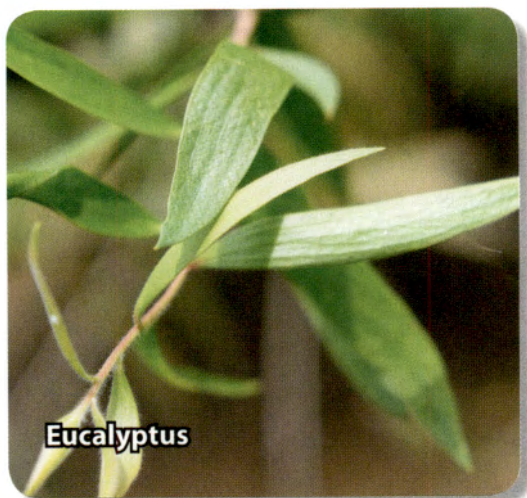
Citronella Oil is available in 180 kg metal drum.

EUCALYPTUS

(*Mellaleuca leucadendra* syn. *M. leucadendron*)

Eucalyptus is of family Myrtaceae. Other local names of eucalyptus are kayu Gelang, Gelam Putih, Inggolom, Baru Gelang, Waru Gelang, Sekalen, Elan, Ai Elane, Kelak, Ngelak, Bus, Iren, Irano, Ilano, and Irone.

The plant grows well in the eastern part of Indonesia. Since long time ago, people in eastern



part of Indonesia have produced eucalyptus oil and traded it abroad, in Mediterranean region. The main markets are U.S, Japan, Singapore, France, and Netherlands.

Eucalyptus oil is usually extracted through steam distillation. The parts of eucalyptus mostly taken are the leaves and twigs.

The standards of good quality eucalyptus oil according to EOA are:

- Colour : Yellow or green
- Density in 25°C : 0,908 to 0,925
- Optical rotation : 0 to 4
- Refractive index 20°C : 1.4660 to 1.4720
- Cineole content : 50% to 65%
- Solubility in 80% alcohol : soluble volume

Eucalyptus oil is packed in drum coated with white tin or galvanic iron drum.



Eucalyptus Oil

CLOVE (*Syzygium aromaticum*)

Eugenia aromatica was the latin name given by Kuntze for clove, while by Merrill and Perrottet clove was named *Syzygium aromaticum*. The later, finally, became the mostly used scientific name.

In Indonesia there are three varieties of cultivated clove, they are: siputih, sikotok, and Zanzibar.

Siputih variety has characteristics:

- Large leaf sheet
- Large yellow flower
- Almost spherical mature fruit

Sikotok has the following characteristics:

- Small leaf sheet
- Yellow flower with a little bit of red on the base
- Pyramid shaped petals



Clove Oil



Clove Flower

While Zanzibar has characteristics:

- Long and slender leaves
- Red flower
- Oval mature fruit

The essential oil of clove is naturally extracted from certain parts of the plant such as the flowers, the stems, and the leaves. Among them, essential has oil distilled from the leaves more economical value. The main contents of clove oil are terpene and derivative. Terpene is mostly used in many industries such as perfumes, flavors, medicine, paints, and plastics. The most significant terpene contained in clove oil is eugenol.

Clove oil is essential oil produced by distilling the flowers of clove. The flowers contain approximately 21,3% of essential oil with eugenol content 78—

nutmeg oil is not merely extracted through steam distillation but also through steam and water distillation.

The nutmeg oil standards of quality according to EOA are:

- Colour : colourless or pale yellow
- Appearance : liquid
- Aroma : typically nutmeg flavor and scent
- Density in 25°C : 0,880—0,930
- Optical rotation : 2—30 degrees
- Refractive Index 25°C : 1.4740—1.4880
- Solubility in alcohol 80% : soluble in 3 volumes

The suggested packaging for nutmeg oil is glass bottles, white tin drum, iron drum coated with white tin, or galvanic containers with good layers.



Nutmeg oil can be used for medication, as one of toothpaste components, and tobacco aroma mixture along with clove, vanilla, and cassia oils.

Sources

The botanical source of Nutmeg oil is *Myristica Fragrans* Houttyn

Appearance

Pale yellow to yellow

Physico-chemical

- Specific gravity 15 oC : 0.854 - 0.925
- Refraction Index 20 oC : 1.474 - 1.497
- Optical Rotation : (+10o) - (+30o)
- Mineral oil : Negative
- Myristicine : 5.0 % - 12.0 %
- Safrole : < 2.5 %
- Sabinene : 14 % - 29 %

Solubilty

Solubility in 90% ethanol 1 : 3 clear, further clear

Packaging

Nutmeg oil is available in 180 kg metal drum.



PATCHOULI (*Pogostemon cablin*)

Patchouli, which is often called *Pogostemon patchouli*, is a member of family Lamiaceae. Patchouli plant is a kind of tropical plant. The perfect temperature for patchouli plant is around 24 Celsius. It is a bushy plant of 0,3—1,3 m high.

Patchouli oil is an important raw material for perfumes, cosmetics industry, as fixative agent in making compound, food or cakes flavors, and as anti infection drug. Patchouli oil characteristics are hardly dissipate, hardly evaporate, soluble in alcohol, and mixable with other ethereal oils.

Patchouli plant production centers in Indonesia is in North Sumatera, particularly in Nias Island, South and Central Tapanuli, Aceh (West and



Patchouli

South Aceh), in Pasaman (West Sumatera), Sukabumi (West Java), and Purwokerto (Central Java).



Patchouli Oil

The patchouli oil standards of quality according to EOA are:

- Colour : greenish or reddish
- Appearance : liquid
- Aroma : typically patchouli flavor and scent
- Density in 25°C : 0,950-0,975
- Optical rotation : (-48)-(-65)degrees
- Refractive Index 20°C : 1.5070-1.5150
- Solubility in alcohol 90% : soluble in 10 volumes

- 0,978—1,038 density at 25 degrees
- 5—25 ester number
- 100—150 ester number after acetylation
- 1:1 solubility in 95% alcohol
- Fresh odor and typical of vetiver oil

Vetiver oil is compulsorily supplied in aluminium or white tin plate, galvanic iron containers, or containers coated with enamel inside.

Vetiver oil is extensively used in cosmetics industry. The oil does not evaporate easily, thus it can be used as a fixative to bind other fragrant oils within a unit of perfume. Another peculiarity of vetiver oil is that it can be mixed with other essential oils in any proportion.



Vetiver Grass

Vetiver oil contains vetiveron, vetiverol, vetivenyl, vetivenate, palmitic acid, benzoic acid, and vetivena. The average yield of vetiver is 1,5%. Due to the high boiling point of vetiver oil, thus the distillation is done with steam. Whenever the distillation tool employs low-steam pressure, then the distillation process will take 24-hour time or 12 hours only if the machine employs a high-pressure tool.

Sources

The Botanical source of Vetiver oil is *Vetiveria Zizanoides*.

Appearance

Yellow to brownish Viscous liquid

Physico-chemical

Specific gravity 20 oC : 0.980 - 1.003

Refraction Index 20 oC : 1.520 - 1.530

Foreign matters : negative



Vetiver Grass Plant

Ester value : 5 - 26

Ester value after acetylating : 100 -150

Total Vetiverol : 50% Min

Acid Value : 10 - 35

Solubilty

Solubilty in 95% Ethanol 1:1 (v/v) clear, further clear

Packaging

Vetiver oil is available in 200 kg metal drum/
plastic drum.

YLANG YLANG *(Cananga odorata)*

The plant typically South East Asia thrives in lowland having high humidity, tropical climate, and nearby coastal area. The growth of the plant will be obstructed if it is cultivated in highland with cold climate.



Ylang Ylang

Just as other essential oils, ylang-ylang oil (cananga oil) should be packed in glass bottles, white tin plate or aluminium containers. The liquid should be light yellow to dark green.

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DIRECTORATE GENERAL OF PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS (DG-PMAP)

Directorate General of Processing and Marketing of Agricultural Products (DG-PMAP) carry out one of Ministry of Agriculture's task in formulating and implementing policy and standardization on processing and marketing of agricultural products. It has main duty to formulate and to perform policy and technical standardization in processing and marketing agricultural products. The mission are :

1. To increase farmers ability in applying post harvest technology and agricultural product processing in order to lessen lost of crop and to improve added value in rural area
2. To apply quality guarantee system effectively for improving competitiveness of fresh and processed products.
3. To increase promotion of agricultural products in order to raise absorption of domestic market as well as currency exchange from agricultural products export.
4. To encourage post harvest efforts, processing and marketing, of agricultural products in order to increase farmers and agribusiness men's income, as well as to create employment opportunity in rural area.



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