



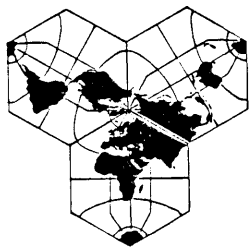
Eva Crane Trust

ECTD_216

TITLE: Honey sources satellites :
Physical properties, flavour and aroma of some honeys

SOURCE: IBRA
[with P. Walker]

DATE: 1986



HONEY SOURCES SATELLITE 4.

PHYSICAL PROPERTIES, FLAVOUR

AND AROMA OF SOME HONEYS

by Eva Crane and Penelope Walker

London 1986

International Bee Research Association

GENERAL INTRODUCTION TO HONEY SOURCES SATELLITES

The "Directory of important world honey sources" by Eva Crane, Penelope Walker and Rosemary Day was published by the International Bee Research Association in 1984, with financial support from the International Development Research Centre, Ottawa. This Directory, and the database from which it was produced, contain much concentrated information which will be of value to certain specialists. IBRA is therefore publishing a series of Honey Sources Satellites on topics of special interest, giving information extracted from the database.

Satellites 1 and 2 are relevant to the whole database. Satellite 1 will be especially useful to readers using Satellites 3-6 who do not have access to the 1984 Directory, and Satellite 2 also to botanists and others concerned with the plant origins of honeys.

Titles of the Honey Sources Satellites are:

1. Bibliography (with author reference codes); country codes; other abbreviations
2. Plants listed alphabetically and by family; common name index; pollen grain information
3. Chemical composition of some honeys
4. Physical properties, flavour and aroma of some honeys
5. Honeydew sources and their honeys
6. Drought-tolerant and salt-tolerant honey sources.

CONTENTS OF SATELLITE 4

1. Introduction	...	...	...	...	...	...	...	5
2. Printouts giving physical properties, flavour and aroma of individual honeys	...	...	...	...	...	...	...	7
3. List of honeys reported to granulate slowly	...	...	...	...	...	...	...	54
4. List of honeys reported to granulate rapidly	...	...	...	...	...	...	...	55

1. INTRODUCTION

The main entries for plants in the 1984 Directory included the physical properties of the honeys and their flavour and aroma, in so far as these characteristics could be established from the literature.

The relevant part of the printouts for honeys from 294 plants are reproduced in Section 2*. The plants are listed in the same order as in the Directory, in which 001 to 452 are nectar-secreting plants and 01D to 15D (at the end) yield honeydew only. Data are given for the following:

Colour

Pfund reading (mm):

white 0-34 (includes grades water white to white)

amber 35-114 (includes grades extra light amber to amber)

dark 115 + (grade dark amber)

(Many authors do not give readings but use verbal descriptions of Pfund grades)

Relative density

Viscosity at 20°C

Optical rotation (deg.)

Electrical conductivity (per ohm cm)

Granulation complete within:

<2 wks = rapid; 2-52 wks = medium; >1 yr = slow

Flavour

Aroma

* The author reference codes in Section 2 lead to the full references in the Bibliography, published in both the Directory and Satellite 1. Data for which no reference is given are from the last reference quoted.

The vocabulary used to describe honey flavours and aromas is very limited and imprecise. Also, a person often assesses a sample of honey in relation to the types he is most accustomed to. Commonly used subjective terms such as good, pleasant or poor are not quoted in the Directory, but very few honeys would have had a flavour description if we had used only terms that are strictly objective. Flavour is a most important characteristic of any food, and we believe that honey flavour descriptions deserve much more professional attention than they have received so far.

Section 3 lists the 49 honeys that were reported in the Directory to granulate slowly (after one year) and Section 4 the 62 reported to granulate rapidly (within two weeks). A further 9 honeys were reported to be completely granulated after a period between 2 weeks and a year, or to have a "medium" granulation period.

2. PRINTOUTS GIVING PHYSICAL PROPERTIES, FLAVOUR AND AROMA
OF INDIVIDUAL HONEYS

001 Acacia berlandieri Benth.; Leguminosae

Pfund white (Lov/56; Pel/76); almost water white (Ord/83)
 Flavour and aroma mild (Dou/79; Lov/56; Pel/76)

004 Acacia greggii A. Grey; Leguminosae

Pfund white or extra light amber (Lov/59d); light amber (Ord/83)

005 Acacia mellifera (Vahl) Benth.; Leguminosae

Colour water coloured (And/73)
 Granulation slow

008 Acacia senegal (L.) Willd.; Leguminosae

Pfund amber (Dou/70)
 Granulation rapid
 Aroma v mild

009 Acacia seyal Del.; Leguminosae

Pfund white (Dou/70)
 Aroma v mild

011 Acer circinatum Pursh; Aceraceae

Pfund amber (Pel/76)
 Flavour distinctive (Con/81)

014 Acer pseudoplatanus L.; Aceraceae

Colour greenish tinge, possibly due to presence of honeydew (How/79). Pfund light amber (Cra/75; Kir/60); amber (How/79)
 Optical rotation -5.58 deg (Kir/60)
 Granulation slow, fine (Cra/75); slow, coarse (Kir/60)
 Flavour rank when fresh, but improves with age (How/79); like heather (Kir/60). Aroma unremarkable (Cra/75)

016 Actinodaphne angustifolia Nees; Lauraceae

Colour black (Pha/67)

Relative density 1.405. **Viscosity** of "pisa" honey (Raj/70).

Optical rotation -42 minutes (Pha/67)

Granulation medium, 4-6 mths

Flavour like molasses

017 Actinodaphne hookerii Meissn.; Lauraceae

Colour burnt amber (Chu/65); dark black (Pha/62)

Relative density 1.405 (Pha/62). **Viscosity** of "pisa" honey (Raj/70). **Optical rotation** -54 minutes

Flavour like molasses

019 Aegiceras corniculatum (L.) Blanco; Myrsinaceae

Pfund extra white (Bla/72)

Granulation rapid in cool weather

Flavour distinctive

020 Aesculus hippocastanum L.; Hippocastanaceae

Colour transparent, almost colourless (Fed/55)

Viscosity "thin". **Electrical conductivity** 0.00013/ohm cm (Dus/67)

Granulation rapid (Fed/55)

021 Aesculus turbinata Bl.; Hippocastanaceae

Colour yellow (Aso/60)

022 Agave americana L.; Agavaceae

Colour dark (And/73; Lov/56); v dark (Pel/76)

Flavour strong, "poor" (Lov/56). **Aroma** of sour grain mash (Lov/57a)

023 Aloe davyana Schonl.; Liliaceae

Colour v light, almost colourless (And/73); clear (Cri/57; Joh/75). **Pfund** water white

Optical rotation -23.8 deg (Joh/76a)

Granulation rapid, fine (And/73); accelerated by low night and high day temps (Joh/75); soft creamy consistency like lard (Cri/57)

Flavour rather sickly sweet, not pronounced (Cri/57); mild (Joh/76a). **Aroma** none (And/73); little (Joh/75)

025 *Aloe mutans* Reynolds; Liliaceae

Colour v pale straw (And/73); clear (Cri/57). **Pfund** light amber
Granulation rapid, fine creamy (And/73); colour then slightly
 yellowish (Cri/57)
Flavour and aroma mild (And/73)

026 *Aloysia gratissima* (Gill. & Hook.) Troncoso; Verbenaceae

Pfund white (Lov/56)
Viscosity "heavy body"
Granulation rapid (Lov/56d)
Flavour mild (Lov/56). **Aroma** delicate

027 *Aloysia virgata* (Ruiz & Pav.) A.L.Juss.; Verbenaceae

Colour light (Ord/83)

028 *Ampelopsis arborea* (L.) Koehne; Vitaceae

Pfund amber (Lov/60); dark amber (Mot/64)
Granulation rapid (Mot/64)

031 *Anchusa officinalis* L.; Boraginaceae

Electrical conductivity 0.000145/ohm cm (Vor/64)
Granulation slow (Dem/64)

032 *Andira inermis* (Wright) DC.; Leguminosae

Pfund amber

033 *Angelica archangelica* L.; Umbelliferae

Colour dark (Dem/64); reddish (Glu/55)
Electrical conductivity 0.000287/ohm cm (Vor/64)

034 *Antigonon leptopus* Hook. & Arn.; Polygonaceae

Colour light (Cra/75); often black (Lov/56); dark brown (Mot/64);
 almost white (Pel/76). **Pfund** light to dark amber (Ord/83); 104-
 114 mm, amber (Whi/62)
Granulation [slow] none in 4 yrs (Mot/64)
Flavour like aster honey, or like molasses with a tang. **Aroma**
 characteristic (Cra/75); strong (Pel/76)

035 Asclepias syriaca L.; Asclepiadaceae

Colour v light (Cra/75); yellow (Lov/56)

Viscosity "thick and heavy" (Roo/74)

Granulation slow, may take yrs (Cra/75)

Flavour characteristic (Lov/56); fruity, rather like quince, with light tang (Roo/74). **Aroma** of the flowers (Cra/75)

036 Astragalus sinicus L.; Leguminosae

Colour pale brown (Aso/60). **Pfund** extra light amber (Mad/81); water white (Pel/76)

037 Avicennia germinans (L.) L.; Avicenniaceae

Colour light (Cra/75; Pel/76); dark but light if not unifloral (Mot/64); usually dark but light in Cuba (Ord/83). **Pfund** white to light amber (Lov/56); water white or extra light amber (Lov/62d)

Viscosity "thin bodied" (Lov/56)

Granulation rapid (Mot/64; Ord/83); fine grain (Lov/61)

Flavour mild (Cra/75; Pel/76); slightly salty or brackish (Lov/56; Mot/64); can be sweet (Lov/61). **Aroma** sometimes "swampy" (Lov/61)

038 Avicennia marina (Forssk.) Vierh. var. resinifera (Forst.) Bakh.; Avicenniaceae

Pfund extra light amber to light amber (Bla/72; Boo/72); light amber (Wal/78)

Viscosity "light bodied" (Wal/78)

Granulation slow (Bla/72); soft grain (Wal/78)

Flavour strong

039 Azadirachta indica A. Juss.; Meliaceae

Colour light golden (Koh/58)

Viscosity "thin"

Flavour slightly bitter

042 Banksia serrata L.f.; Proteaceae

Colour medium to dark (Goo/73)

Granulation rapid

043 Barbarea vulgaris R. Br.; Cruciferae

Colour greenish yellow (Glu/55); rich yellow (Lov/56)

Viscosity "thin" (Glu/55)

Flavour strong

044 Berchemia scandens (Hill) K. Koch; Rhamnaceae

Pfund amber (Lov/56; Lov/60b); dark amber (Pel/76; Lov/61a)

Viscosity "good body" (Lov/56)

Granulation slow, almost none after 10 yrs (Lov/60b)

045 Bidens pilosa L.; Compositae

Colour reddish (Lov/57b; Mot/64); yellow (Lov/58c); reddish-golden (Ord/83)

Granulation [slow] none under normal conditions (Mot/64; Ord/83) 58c); mild (Mot/64); delicate (Ord/83). **Aroma** fragrant (Mot/64)

047 Borago officinalis L.; Boraginaceae

Colour whitish with yellow-grey tint (Cra/75); light (Fed/55); v dark (Lov/56); black (Pel/76)

Electrical conductivity 0.000193/ohm cm (Vor/64)

048 Borreria verticilata (L.) G. Meyer; Rubiaceae

Colour chestnut, may be v dark (Bah/70); ?dark brown (Bah/73)

Flavour rather sharp, unpleasant

050 Brachystegia laurentii (De Wild.) Louis ex Hoyle; Leguminosae

Flavour "subtle flavour of eko flowers" (Ich/81)

051 Brachystegia longifolia Benth.; Leguminosae

Relative density >1.4129 (Sil/76a)

Granulation coarse, colour then brown

054 Brassica campestris L.; Cruciferae

Colour white or yellowish white (Fan/52); clear, yellowish (Pel/76). **Pfund** 70-85 mm, light amber (Whi/62)

Granulation ?rapid (Fan/52)

Flavour like wine (Fan/52); rather like the plant (Pel/76)

060 Brassica napus L. var. oleifera DC.; Cruciferae

Colour bright yellow (Dus/72); pale yellow (Fed/55; Mur/76); golden (Pel/76); greyish white (Ric/78). **Pfund** water white (Cra/75; Wal/78); <35 mm, white (Lou/80); light amber when liquid (Pal/59); Pfund-Lovibond grade (Aub/83)

Relative density 1.412 (Mur/76). **Electrical conductivity** (per ohm cm) 0.00017-0.00021 (Dus/67); 0.00012-0.00027 (Pou/70); 0.000137 (Vor/64)

Granulation v rapid (Cab/81; Dem/64); fine, homogeneous (Cab/81; Ric/78); colour then white (Pal/59). **Alert to beekeepers** honey granulates v rapidly - within a few days, sometimes in the comb (Cab/81)

Flavour sweet (Cra/75); mild (Lou/80); little when granulated (Pal/59); delicate (Wal/78). **Aroma** of flowers (Lou/80); varies from none to rather unpleasant, characteristic (Wal/78)

061 Brassica nigra (L.) Koch; Cruciferae

Colour light, bright (How/79); yellow cast (Lov/56). **Pfund** light amber (Lov/56; Ord/83)

Flavour usually mild (Lov/56); strong like mustard when freshly extracted (Ord/83). **Aroma** strong when fresh (How/79)

064 Butea monosperma (Lam.) Taub.; Leguminosae

Pfund ?light amber (Khn/48)

066 Caesalpinia coriaria (Jacq.) Willd.; Leguminosae

Pfund light amber (Ord/83)

067 Cajanus cajan (L.) Millsp.; Leguminosae

Colour distinctive greenish hue in the comb (Lau/76)

068 Caldcluvia paniculata D. Don; Cunoniaceae

Colour light (Car/38)

Granulation fine

Aroma v aromatic

070 Calliandra calothyrsus Meissn.; Leguminosae

Flavour bitter-sweet (Usa/80)

072 Calluna vulgaris (L.) Hull; Ericaceae

Colour golden (Bab/61); light, dark or reddish brown (Cra/75); reddish (Lou/77; Lov/56). **Pfund** amber (Lou/77; Lov/56); variable, sometimes dark amber (Mic/54); 8.5 mm, extra white (Uni/83)

Viscosity "very heavy body" (Lov/56). **Alert to beekeepers** thixotropic (Cra/75), due to protein content (Pry/50), so difficult to extract from combs; thixotropy ratios in Mic/54 and Mic/55. **Optical rotation** 14.35 to 15.03 deg (Feo/71). **Electrical conductivity** (per ohm cm) 0.00075-0.00080 (Dus/67); 0.00075-0.00095 (Lou/77); 0.0008 regarded as lowest level for Calluna honey (Hao/75)

Granulation slow, forming large crystals (Lou/77); slow, forming hard spherical grains (Uni/83)

Flavour characteristic, slightly bitter (Lou/77); aromatic (Lov/56); mild but pronounced (Wal/78). **Aroma** pronounced, characteristic (Cra/75); strong, floral (Lou/77)

073 Calycophyllum candidissimum (Vahl) DC.; Rubiaceae

Pfund water white, beyond Pfund scale (Ord/83)

Granulation medium

076 Carnegiea gigantea (Engelm.) Britton & Rose; Cactaceae

Viscosity "very thick" (Ord/83)

077 Carvia callosa (Nees) Brem.; Acanthaceae

Colour dark red, becoming burnt amber (Chu/65); greenish amber (Pha/62); greenish fluorescence observed when freshly extracted (Sur/78). **Pfund** dark amber (Pha/64; Pha/67; Sur/75). **Opacity** values (Pha/67)

Relative density 1.41 (Pha/62); 1.404 (Pha/67). **Viscosity (alert to beekeepers)** thixotropic (Chu/65; Sur/75); "thick" (Sur/78). **Optical rotation** +2 deg 18 minutes (Pha/62); +03 minutes (Pha/67)

Granulation slow, 5-6 yrs (Pha/67)

Aroma characteristic (Pha/64); strong (Sur/75)

079 Castanea pubinervis (Hassk.) C.K. Schn.; Fagaceae

Colour black or brown (Inu/57); v dark (Wah/74)

Flavour characteristic, bitter (Wah/74). **Aroma** "unpleasant" (Inu/57); characteristic (Wah/74)

080 Castanea sativa Mill.; Fagaceae

Colour often reddish (Cra/75); light brown (Fos/56); may be slightly fluorescent if honeydew present (Haz/55); yellow (How/79); darker if honeydew present (Klo/65); pale yellow (Mur/76); dark (Pia/81); dark brown (Ric/78); honeydew honey almost black (Ric/78). **Pfund** light/dark amber (Cra/75); amber (Kir/60); Pfund-Lovibond grade (Aub/83)

Relative density 1.4241 (Mur/76). **Viscosity** "thin" (Fed/55).

Optical rotation (deg) -33.91 (Bat/73); -2.25 to -3.50 (Iva/78); -3.99 (Kir/60). **Electrical conductivity** (per ohm cm) 0.0006-0.0008 (Dus/67a); 0.000578-0.000742 (Iva/78); 0.001553 (Mal/77); 0.00916-0.001844 (Pes/80); for honeydew honey, >0.009 (Dus/67a)

Granulation slow (Fos/56; Pia/81); fine (Cra/75); slow, irregular (Pes/80); absent or v irregular (Ric/78)

Flavour pronounced, may be bitter (Cra/75; Maz/82); sharp (Fos/56); v objectionable, bitter (Kir/60); rather bitter (Ric/78).

Aroma sharp, and like the flowers (Cra/75; Maz/82); v aromatic (Fos/56; Pes/80); pungent (Pia/81)

081 Catunaregam spinosa (Thunb.) Tirvengadam; Rubiaceae

Colour golden yellow (Chu/65); pale yellow (Pha/62)

Relative density 1.416 (Chu/65); 1.425 (Pha/62). **Viscosity** at 26° over 100 poise (est), at 45°, 20 poise approx (Raj/70).

Optical rotation -2 deg 4 minutes (Naa/70); -2 deg 12 minutes (Pha/62)

Granulation medium (Chu/65); 8-12 months (Naa/70)

082 Ceiba pentandra (L.) Gaertn.; Bombacaceae

Colour light (Dou/79). **Pfund** amber (Mot/64; Woy/81); light amber (Ord/83)

Flavour characteristic (Mot/64; Ord/83)

083 Centaurea cyanus L.; Compositae

Colour greenish yellow (Dus/72); dark yellowish amber (Ord/83).

Electrical conductivity 0.000310/ohm cm (Vor/64)

Flavour of almond, may be rather bitter (Fed/55); strong, may be bitter (Ord/83)

084 Centaurea solstitialis L.; Compositae

Colour greenish (Lov/56; Van/41); greenish with yellow tinge like olive oil (Pel/76). **Pfund** white or extra light amber

(Lov/56; Van/41); white (Pel/76; Wal/78)

Viscosity "heavy body" (Pel/76)
Granulation rapid (Van/41); v fine grained (Goo/47)
Flavour v sweet, almost cloying (Pel/76); delicate (Wal/78)

085 Cercidium floridum Benth.; Leguminosae

Colour light yellow (Pel/76). **Pfund** light amber (Ord/83)
Viscosity "good body" (Pel/76)
Flavour distinctive, like bark of this tree (Ord/83; Pel/76)

088 Citrus aurantium L.; Rutaceae

Pfund-Lovibond grade (Aub/83)

090 Citrus deliciosa Ten.; Rutaceae

Colour pale yellow
Relative density 1.359, 1.394. **Optical rotation** -12.29, -13.14 deg

093 Citrus limon (L.) Burm. f.; Rutaceae

Colour clear (Erb/83). **Pfund** light amber (Ord/83)
Flavour delicate, "aromatic" (Erb/83); strong, sour (Ord/83).
Aroma delicate, "aromatic" (Erb/83); characteristic, and like the plant (Ord/83)

097 Citrus sinensis (L.) Osb.; Rutaceae

Colour transparent and bright, light brown (Bah/73); light yellow, almost white (Ske/72). **Pfund** water white to v pale amber (Cri/57); white (Kal/77); white to extra light amber (Lov/56); clear white to dark amber, varies with season, darkens with age (Mot/64); white (Pel/76; Van/41)
Viscosity "heavy body" (Mot/64; Pel/76)
Granulation slow (Joh/75); few months (Mot/64)
Flavour aromatic (Bah/73); characteristic (Ske/72). **Aroma** characteristic of orange blossom (Joh/75; Lov/56; Mot/64)

099 Clethra alnifolia L.; Clethraceae

Colour tinged with yellow (Lov/56). **Pfund** white (Lov/56; Pel/76); 50-70 mm, light amber (Whi/62)
Viscosity "thick" (Pel/76)
Flavour mild (Lov/56). **Aroma** like the flower

101 Coccoloba uvifera L.; Polygonaceae

Pfund amber (Lov/56; Pel/76); v light amber (Mot/64); light amber (Ord/83)

Flavour spicy (Mot/64); sharp (Ord/83)

104 Cocos nucifera L.; Palmae

Colour may be greenish-yellow like motor oil (Mot/64); crystal clear if monofloral (Ord/83). **Pfund** amber, but ?water white if monofloral (Cra/75; Mot/64)

Granulation [medium] 3 mths (Mot/64)

105 Coffea arabica L.; Rubiaceae

Colour of whisky (Cor/76); light (Cra/75; Ord/83); clear (Ord/72; Ste/71). **Pfund** white (Ord/44; Woy/81); amber (Ord/72; Ste/71); light amber (Ord/83)

Flavour characteristic (Cra/75; Ord/83); characteristic of coffee (Woy/81). **Aroma** delicate (Kem/80)

106 Combretum celastroides Laws.; Combretaceae

Pfund extra light to light amber (Smt/57)

110 Cordia alba (Jacq.) Roemer & Schultes; Boraginaceae

Pfund light amber (Ord/63a; Ord/72)

112 Cordia gerascanthus L.; Boraginaceae

Colour v light (Ord/44; Ord/83)

Flavour and aroma delicate (Ord/72; Ord/83)

114 Coriandrum sativum L.; Umbelliferae

Colour dark (Dem/64)

Optical rotation -1.75 to -2.40 deg (Iva/78). **Electrical conductivity** (per ohm cm) 0.000349-0.000520 (Iva/78); 0.000510 (Vor/64)

115 Croton floribundus Spreng.; Euphorbiaceae

Pfund white (Ord/83)

117 Cucumis melo L.; Cucurbitaceae

Pfund 42-50 mm, light amber (Whi/62; also Lov/56)

118 Cucurbita pepo L.; Cucurbitaceae

Colour yellow (Fed/55)

Granulation rapid

120 Cynara cardunculus L.; Compositae

Colour light (Cra/75); v light (Lut/63). **Pfund** medium amber (Gom/73); light amber (Pur/68)

Granulation coarse (Gom/73)

Flavour mild (Cra/75)

122 Dalbergia sissoo DC.; Leguminosae

Pfund amber to dark amber (Sig/62)

Flavour strong

124 Daniellia oliveri (Rolfe) Hutch & Dalz.; Leguminosae

Colour black (Dou/80); dark (Ndi/74)

Granulation slow (Ndi/74)

Flavour acrid, unpleasant (Dou/79); strong (Ndi/74)

125 Daucus carota L.; Umbelliferae

Colour dark yellow (Glu/55); dark (Ord/83; Van/41); grey (Ric/77). **Pfund** light amber (Cha/48; Cra/75); white (Lov/56); medium amber (Lov/63a)

Flavour mild (Lov/56); distinctive (Lov/63a); strong (Van/41).

Aroma fragrant (Glu/55); like the plant (Ord/83)

126 Dialium engleranum Henriques; Leguminosae

Colour light (Dou/50)

130 Diospyros virginiana L.; Ebenaceae

Pfund light amber (Lov/56; Mot/64); amber (Pel/76)

131 Diplotaxis eruroides (L.) DC.: Cruciferae

Colour greyish white (Ric/78)

Granulation fine, homogeneous

Aroma strong odour of rape when honey is dissolved in water

132 Dipsacus fullonum L.; Dipsacaceae

Colour transparent (Pel/76). **Pfund** white (Lov/56; Pel/76)

134 Dombeya rotundifolia (Hochst.) Planch.; Sterculiaceae

Colour light (And/73; Cri/57). **Pfund** extra light amber (Cra/75; Smt/57); light amber (Sto/82)

135 Dracocephalum moldavica L.; Labiatae

Colour light (Fed/55)

Electrical conductivity 0.000120/ohm cm (Vor/64)

Flavour slightly of lemon (Fed/55)

136 Dryandra sessilis (Knight) Domin; Proteaceae

Pfund light to extra light amber (Cra/75); darkened about twice as rapidly as other AUS/WA honeys; 55 mm, light amber (60 mm after 24 h at 50° or 1.5 h at 70°, 65 mm after 3.5 h at 70°, Smt/67)

Flavour characteristic (Cra/75)

139 Echium lycopsis L.; Boraginaceae

Colour white to light golden (Cra/75); light (Pur/68). **Pfund** light amber (Gom/73)

Granulation rapid

Flavour delicate (Cra/75); peculiar but not objectionable (Gom/73)

140 Echium vulgare L.; Boraginaceae

Colour white to light golden (Cra/75); dull white (Mao/82).

Pfund amber (Cha/48); 24.2 mm, white (bulk honey, Lan/66);

water white (Lov/56); 8-12 mm, extra white (Whi/62)

Electrical conductivity 0.000111/ohm cm (Vor/64)

Granulation slow (Mao/82); fine, colour then dull (Wal/78)

Flavour delicate (Cra/75); flat (Wal/78)

141 Ehretia acuminata R. Br.; Boraginaceae

Pfund amber (Sig/62)
 Flavour characteristic

143 Elaeis guineensis Jacq.; Palmae

Colour v dark (Ord/83). Pfund dark amber (Smt/56a)
 Flavour strong, astringent (Hol/74; Ord/83; Smt/56a)

144 Epilobium angustifolium L.; Onagraceae

Colour greenish (Fed/55); v light (Pel/76). Pfund water white
 (Con/81; How/79; Lov/54c); white (Cra/75); 27-34 mm, white
 (Whi/62)

Electrical conductivity 0.000128/ohm cm (Vor/64)

Granulation medium (Dem/64); rapid (Glu/55); rapid, fine (How/79)

Flavour rich (Fed/55); almost none but v sweet (How/79); mild
 (Lov/54c)

145 Erica arborea L.; Ericaceae

Colour golden (Bab/61); orange (Erb/83; Ric/78)

Optical rotation -32.65 deg (Bat/73)

Aroma intense (Erb/83); strong (Ric/78)

146 Erica cinerea L.; Ericaceae

Colour brownish "port-wine" (Cra/75); reddish "port-wine" (How/79)

Granulation rapid (How/79)

Flavour characteristic (Cra/75); distinctive or pronounced (How/79)

147 Erica herbacea L.; Ericaceae

Colour light to dark yellow

Flavour v sharp. Aroma strong

149 Eriobotrya japonica (Thunb.) Lindl.; Rosaceae

loquat; neflier du Japon (Fr)

Pfund amber (Cra/75; Mot/64)

151 Eucalyptus alba Reinw. ex Blume; Myrtaceae

Colour dark (Wie/80). Pfund medium amber (Bla/72)

152 Eucalyptus albens Benth.; Myrtaceae

Colour light (Gom/73); dark (Wie/80); slightly cloudy (Bla/72).
Pfund white to light amber (And/73); 19-46 mm, white to extra light amber (Bla/72; Lei/72; Roc/68); almost water white (Cra/75); medium amber (Pur/68); 47.3 mm, extra light amber (123.5 mm, dark amber, after 44 days at 50°, Woo/76)
Granulation rapid (And/73; Gom/73); rapid, smooth, creamy (Bla/72); rapid fine (Cra/75)
Flavour mild (Gom/73)

153 Eucalyptus anceps (Maiden) Blakely; Myrtaceae

Pfund light amber (Boo/72); medium/amber (Lei/72; Pur/68)

154 Eucalyptus caleyi Maiden; Myrtaceae

Colour bright, exceptionally clear (Bla/72). **Pfund** 2.0-15.5 mm, extra white (Bla/72; Lei/72; Pur/68; Roc/68)
Granulation rapid, smooth, transparent grain (Bla/72)
Flavour sweet

155 Eucalyptus calophylla R.Br.; Myrtaceae

Pfund light amber (Cra/75; Smt/69); 46-64 mm (Smt/65) and 40 mm (Smt/67), both light amber
Granulation fine (Cra/75; Smt/69)

156 Eucalyptus camaldulensis Dehnh.; Myrtaceae

Colour clear golden (And/73; Sou/63); grey with chestnut tint (Erb/83); straw coloured (Gom/73); v variable, generally light grey, may be darker (Ric/78); v clear (Ske/72). **Pfund** 32-63 mm, white to light amber (Bla/58; Lei/72; Roc/68); light amber (Boo/72; Pur/68); medium amber (Cra/75); 34.1 mm (also 3 "bulk honeys" 37.7-51.3 mm), extra light amber (Lan/66); 51 mm, light amber (Peo/72)
Viscosity 103.20 poise (Moh/82). **Optical rotation** -8.55 deg.
Other physical properties - may froth on extraction (Bla/58)
Granulation rapid (And/73; Sou/63); slow, large brown crystals (Bla/58; Cra/75); rapid, hard (Gom/73); medium (Moh/82); fine-grained and compact (Ric/78)
Flavour mild, woody (Bla/58; Cra/75; Lei/72). **Aroma** characteristic (Ric/78)

157 Eucalyptus citriodora Hook.; Myrtaceae

Pfund light amber (And/73); medium amber (Cra/75)
Granulation v firm (And/73)

158 Eucalyptus cladocalyx F. Muell.; Myrtaceae

Colour pale straw (And/73 Gom/73); light (Mou/72). **Pfund** 41 mm, extra light amber (Anr/74); light amber (Boo/72; Pur/68)
Relative density 1.438 (Anr/74). **Viscosity** 21.36 poise. **Other properties** froths on heating (Sou/65)
Granulation slow, none if monofloral (And/73; Mou/72)

159 Eucalyptus cornuta Labill.; Myrtaceae

Colour light medium (And/73)
Granulation rapid, fine
Flavour fairly strong

160 Eucalyptus crebra F. Muell.; Myrtaceae

Pfund light amber (And/73); extra white to extra light amber (Bla/72); 14-35 mm, white (Lei/72; Roc/68)
Viscosity "heavy body" (Bla/72)
Granulation slow, coarse whitish grain
Flavour mild, sweet

161 Eucalyptus diversicolor F. Muell.; Myrtaceae

Colour light straw (And/73). **Pfund** extra light amber (Cra/75; Smt/69); 22 mm, white (Smt/67)
Granulation slow (And/73); rapid, fairly coarse (Cra/75)
Flavour mild, characteristic (Cra/75)

162 Eucalyptus drepanophylla F. Muell. ex Benth.; Myrtaceae

Pfund 20-40 mm, white to extra light amber (Bla/72; Roc/68)
Flavour - this sp usually contributes to mixed honeys, in which its flavour predominates (AUS/QD, Bla/72)

164 Eucalyptus fasciculosa F. Muell.; Myrtaceae

Pfund white (Boo/72); 16 mm, extra white (Che/74); light amber (Pur/68)

165 Eucalyptus ficifolia F. Muell.; Myrtaceae

Colour light straw (And/73); rather dark (Wal/78). **Pfund** water white (Pel/76)

Viscosity (alert to beekeepers) may be "stringy/ropy" (And/73; Pry/52); increases to sudden stiffness on rapid stirring (dilatancy) (Pry/50; Pry/52)

Granulation slow (And/73)

Flavour pleasant, but feels slimy in the mouth (And/73); pronounced, characteristic (Wal/78)

166 Eucalyptus globulus Labill.; Myrtaceae

Colour dark (Glu/55; Ske/72); fairly dark (Ord/83); cloudy (Wal/78). **Pfund** light amber (Gom/73); 70 mm, medium amber (Lov/61c; Roc/68; Wal/78); amber (Pel/76)

Viscosity "heavy body" (Pel/76); "light body" (Wal/78)

Granulation medium (Pel/76); slow (Wal/78)

Flavour distinctive (Glu/55; Lov/61c); acid (Pel/76); like muscatel grapes (Wal/78)

167 Eucalyptus gomphocephala DC.; Myrtaceae

Colour light (And/73; Smt/69)

Granulation rapid, fine (Smt/69)

Flavour of caramel (And/73; Dai/70). **Aroma** strong (Dai/70)

168 Eucalyptus gracilis F. Muell.; Myrtaceae

Pfund light amber (Boo/72; Gom/73; Lei/72; Pur/68); 55.4 mm, light amber ("bulk honey", Lan/66)

Flavour mild (Gom/73; Lei/72)

169 Eucalyptus grandis W. Hill ex Maiden; Myrtaceae

Colour pale to medium amber (Bla/58); medium dark (Cra/75); darkens on heating (Guy/74; Joh/75). **Pfund** medium amber (And/73; Her/83); lighter at higher altitudes, darker on Zululand coast and in lower Transvaal (SOU, Guy/74)

Other physical properties - froths on heating (And/73; Her/73)

Granulation medium, slaty, soft, smooth grain (Bla/58); rapid, fine (Cra/75; Her/73); coarse in warm regions, fine in colder areas where it sets rock hard (Guy/74); rapid, may set rock hard (Joh/75)

Flavour strong, slightly objectionable (Bla/58); strong if dark, impaired by heating (Guy/74); **Aroma** when fresh, but fades (Guy/74)

170 Eucalyptus incrassata Labill.; Myrtaceae

Pfund medium amber (Boo/72; Gom/73; Lei/72; Pur/68)

172 Eucalyptus leucoxydon F. Muell.; Myrtaceae

Colour clear, pale straw (And/73; Cra/75; Gom/73). **Pfund** light amber (Boo/72); 20 mm, white; also 68 mm, light amber (Che/74); white (Glu/55); 62.4 mm (67.4 mm after 16 h at 66°), light amber (Lan/66; Lei/72; Pur/68); 23.3-55.0 mm, white to light amber (4 bulk honeys, Lan/66); medium amber (Lei/72)

Viscosity "good body" (Cra/75)

Granulation rapid (And/73; Cra/75); fine (Gom/73)

Flavour mild (And/73; Cra/75; Gom/73); like vanilla (Glu/55; Pel/76)

173 Eucalyptus loxophleba Benth.; Myrtaceae

Colour light to medium, varies with season (Cra/75). **Pfund** medium amber (Col/62; Smt/69); light amber (Lei/72)

174 Eucalyptus macrorhyncha F. Muell. ex Benth.; Myrtaceae

Colour clear, strong colour (Gom/73); dark (Pur/68). **Pfund** amber (Boo/72); 47.4 mm, extra light amber, and 57.9 mm, light amber (also 62.8-77.3 mm, light amber for 3 "bulk honeys", Lan/66); 72 mm, light amber (Roc/68)

Granulation medium (Gom/73)

175 Eucalyptus maculata Hook.; Myrtaceae

Colour orange in fresh combs (Guy/72). **Pfund** amber (And/73); 49-65 mm, extra light to light amber (Bla/72; Roc/68); 52 mm, light amber (Che/74); medium amber (Cra/75); dark amber (Guy/72)

Other physical properties stringy/ropy (And/73; Guy/72); froths very much on heating (Bla/72; Guy/72)

Granulation slow, coarse (And/73; Dai/70; Guy/72); brown grain (Bla/72)

176 Eucalyptus melliodora A. Cunn. ex Schauer; Myrtaceae

Colour pale straw if monofloral (And/73; Gom/73; Joh/75; Sou/63); usually extra light (Cra/75). **Pfund** 12-45 mm, extra white to extra light amber (Bla/72; Lei/72; Roc/68); 21 mm, white (26 mm in sample age 5-12 mths, Che/74); 26.9 mm, white (115.2 mm, dark amber after 44 days at 50°, Woo/76)

Granulation slow, none if monofloral (Bla/72; Joh/75; Mou/75)

Flavour sweet, cloying, pronounced (And/73; Bla/72; Cra/75; Mou/75). **Aroma** characteristic (And/73); v aromatic (Sou/63)

177 Eucalyptus moluccana Roxb.; Myrtaceae

Colour darkens on storage (Bla/72). **Pfund** 35-75 mm, extra light to medium amber (Bla/72; Roc/68)

Granulation rapid, colour then greyish (Bla/72)

178 Eucalyptus oleosa F. Muell ex Miq.; Myrtaceae

Pfund light amber (Boo/72; Pur/68); medium amber, sometimes darker (Gom/73; Lei/72)

Flavour mild (Gom/73; Lei/72)

179 Eucalyptus panda S.T. Blake; Myrtaceae

Pfund extra light to light amber (Bla/72); light amber (Lei/72)

Granulation slow (Bla/72)

Flavour mild, sweet

180 Eucalyptus paniculata Smith; Myrtaceae

Colour light (And/73; Cra/75); pale straw (Coe/71; Guy/71)

Granulation slow or medium (And/73); slow, fine (Coe/71; Cra/75; Guy/71); **(alert to beekeepers)** granulates in hive if cold (Coe/71)

182 Eucalyptus polyanthemos Schauer; Myrtaceae

Colour pale, dull (And/73; Gom/73; Lei/72)

Viscosity (alert to beekeepers) honey "difficult to extract" (Gom/73)

Granulation slow, none if monofloral (And/73; Gom/73; Sou/63)

Flavour usually slightly oily or like tallow, but this disappears after 12 mths (Gom/73); oily (Lei/72; Loo/70)

183 Eucalyptus propinqua Deane & Maiden; Myrtaceae

Colour reddish tint (Goo/47). **Pfund** extra light to medium amber (Bla/72); medium amber (Pen/61)

184 Eucalyptus robusta Smith; Myrtaceae

Pfund medium amber (Bla/72); dark amber (Cra/75); 85.1, 80.1 mm, amber (Fle/63)

185 Eucalyptus rubida Deane & Maiden; Myrtaceae

Colour dark (And/73); clear (Gom/73). **Pfund** amber (Gom/73)

187 Eucalyptus sideroxylon A. Cunn. ex Woolls; Myrtaceae

Colour light straw (And/73); pale (Gom/73). **Pfund** 41 mm, extra light amber (Bla/72; Lei/72; Roc/68); 47.4 mm, extra light amber (bulk honey, Lan/66)

Viscosity "good body" (Bla/72)

Granulation rapid, fine (And/73; Bla/72; Gom/73)

Flavour mild (Gom/73)

188 Eucalyptus socialis F. Muell. ex Miq.; Myrtaceae

Pfund light amber (Boo/72); medium amber (Gom/73)

Flavour "not altogether objectionable" (Gom/73)

189 Eucalyptus tereticornis Smith; Myrtaceae

Colour extra light straw (And/73); dark (Cra/75). **Pfund** light amber (Bla/72); 44.9 mm, extra light amber (67.7 mm, light amber after 16 h at 77°, Lan/66)

Viscosity "good body" (And/73)

Granulation rapid, medium grain

Flavour characteristic, like caramel (Bla/72); strong (Cra/75)

190 Eucalyptus viminalis Labill.; Myrtaceae

Colour clear (Gom/73; Sou/63). **Pfund** pale to medium amber (Bla/72); light amber (Boo/72); medium amber (Lei/72; Pur/68)

Granulation slow, coarse brownish grain (Bla/72); rapid (Cra/75; Gom/73; Pen/61)

Flavour distinctive, sweet (Gom/73; Sou/63)

191 Eucalyptus wandoo Blakely; Myrtaceae

Pfund light amber to amber (Cra/75); extra light to light amber (Lei/72; Smt/69); 36 mm, extra light amber (Smt/67)

Granulation medium grain, colour then light cream (Cra/75; Pen/61)

Flavour mild (Cra/75; Lei/72; Smt/69)

192 Eucryphia cordifolia Cav.; Eucryphiaceae

Colour pale pink (Car/38)

Granulation, colour then almost white

Aroma characteristic

193 *Eucryphia lucida* (Labill.) Baill.; Eucryphiaceae

Pfund light amber (Rap/69)

Flavour distinctive, pronounced when liquid, but less so when granulated. **Aroma** quite strong

194 *Eucryphia milligannii* Hook.f.; Eucryphiaceae

Colour lighter than *E. lucida* honey (Par/77)

Flavour milder than *E. lucida* honey

197 *Eupatorium odoratum* L.; Compositae

Pfund amber (Cra/84); light amber (Zma/80)

Granulation slow, fine (Cra/84; Zma/80)

Flavour mild (Cra/84). **Aroma** slight

198 *Euphoria longan* (Lour.) Steud.; Sapindaceae

Colour of 4 samples: orange, deep brown, red brown, earth yellow (Lin/77). **Pfund** dark amber (Cra/84)

Relative density 1.38-1.40 (3 samples, Lin/77)

Granulation [slow] rare (Cra/84)

Flavour characteristic. **Aroma** v fragrant

199 *Fagopyrum esculentum* Moench.; Polygonaceae

Colour light to dark brown (Maz/82); all other reports say dark, with further descriptions: brown (Aso/60; Fos/56; Joh/75); reddish (Fed/55); purple or black (Lov/56); purplish when extracted (Roo/74); yellow with reddish tinge, to brown (Sha/70).

Pfund >114 mm, dark amber (Lov/58; Whi/62); Pfund-Lovibond grade (Aub/83)

Viscosity "thick", difficult to extract (How/79); "heavy body" (Lov/56)

Granulation slow, coarse (And/73); rapid, "flakey" (Fos/56)

Flavour sharp (Fed/55); burnt (Fos/56); all other reports say strong, with further description: characteristic (Cra/75; How/79; Lov/58); somewhat bitter (Maz/82); unusual, slightly nauseating to some (Pel/76). **Aroma** unpleasant (Cri/57); "aromatic" (Fed/55; Fos/56); v strong (Ske/72); strong, characteristic (Sol/63)

200 Faurea saligna Harv.; Proteaceae

Colour dark red-brown (And/73; Guy/71a)

Viscosity "high" (And/73)

Granulation slow

Flavour strong, malty (And/73); strong (Guy/71a). **Aroma** rather musty (And/73)

201 Fuchsia excorticata (J. & G. Forst.) L.f.; Onograceae

Colour light (Wal/78)

Granulation rapid, smooth

Flavour delicate, rather like overheated clover honey

202 Geranium pratense L.; Geraniaceae

Electrical conductivity 0.000337/ohm cm (Vor/64)

203 Gilibertia arborea (L.) March.; Araliaceae

Pfund amber (Ord/83)

206 Gliricidia sepium (Jacq.) Walp.; Leguminosae

Pfund amber (Ken/76; Ord/83; Woy/81); light amber (Mot/64)

Viscosity "very heavy" (Mot/64); "thick" (Woy/81)

Aroma none (Bal/76)

207 Glycine max (L.) Merr.; Leguminosae

Colour v light (Lov/58). **Pfund** white to extra light amber (Eri/75); light amber (Lov/56); water white (Lov/57b); 47-49 mm, extra light amber (Pel/76, Roc/68)

Viscosity "rather thin" (Cra/75; Pel/76); "medium body" (Lov/56)

Granulation rapid (Pel/76)

Flavour characteristic (Eri/75); distinctive (Lov/56); unusual (Pel/76)

210 Gossypium hirsutum L.; Malvaceae

Colour light, but may be dark on dry sandy soils (Cra/75); fairly clear (Woy/81). **Pfund** 17-42 mm, white to extra light amber (Whi/62)

Viscosity "may be thin bodied" (Cra/75). **Optical rotation** -13.72 deg (Moh/82)

Granulation medium

Flavour of honey from plants on dry sandy soils may be strong (Cra/75)

212 Gouania polygama (Jacq.) Urban; Rhamnaceae

Colour almost transparent (Ord/83). **Pfund** light amber

Flavour and aroma characteristic

213 Grevillea robusta A. Cunn. ex R.Br.; Proteaceae

Colour reddish black (Lov/57c). **Pfund** dark amber (Cra/75)

Granulation rapid (Lov/57c)

Flavour pronounced (Cra/75); rank (Lov/57c)

216 Guizotia abyssinica Cass.; Compositae

Pfund light amber (Zma/80)

Granulation slow

Flavour peculiar, bitter

217 Gymnopodium antigonoides (Robinson) Blake; Polygonaceae

Colour light (Ord/83). **Pfund** 64 mm, light amber (Cra/75; Rob/56)

Relative density 1.4171 (Rob/56)

Flavour delicate (Ord/83); characteristic (Rob/56). **Aroma** characteristic (Rob/56)

218 Haematoxylum campechianum L.; Leguminosae

Colour light (Cra/75; Ord/83); pearly white (Pel/76)

220 Hedysarum coronarium L.; Leguminosae

Colour v light (Cra/75); yellowish (Far/79). **Pfund** 11-34 mm, white (Bab/61; Fin/74; Ric/78); also 46-82 mm, light amber (Fin/74); white to water white (Pia/81)

Optical rotation -26.36 deg (Bat/73). **Electrical conductivity** 0.000173 per ohm cm (Pes/80)

Granulation fine grain (Pes/80); becomes white but not hard (Pia/81)

Flavour mild (Cra/75); delicate but characteristic, in drought areas taste is slightly acerbic like raw green beans (Pia/81).

Aroma v slight, almost none (Pes/80; Pia/81; Ric/78)

221 Helianthus annuus L.; Compositae

Colour yellow or golden (And/73; Mur/66; Ric/78); egg-yolk yellow or dark (Cra/75); golden with greenish tinge (Fed/55).

Pfund amber (Fed/55); Pfund-Lovibond grade (Aub/83)

Relative density 1.425-1.452 (Bac/65). **Optical rotation** -0.65 to -3.10 deg (Iva/78). **Electrical conductivity** (per ohm cm) 0.000306 (Iva/78); 0.000307-0.000347 (5 samples, Pes/80)

Granulation rapid (Mot/64); fine (Pes/80); soft (Ric/78)

Flavour mild (And/73); mild but characteristic (Cra/75); distinctive, rather like butter (Uni/83). **Aroma** strong (Cra/75); fairly strong (Pes/80)

223 Hevea brasiliensis Muell. Arg.; Euphorbiaceae

Colour translucent, straw (Fer/78); v clear (Mae/75). **Pfund** water white (Nig/83)

Granulation rapid (Nig/83); [medium] starts after 2 mths (Fer/78)

Flavour v sweet (Mae/75)

229 Hyssopus officinalis L.; Labiatae

Electrical conductivity 0.000144/ohm cm (Vor/64)

Flavour aromatic (Fed/55)

230 Ilex glabra (L.) A. Gray; Aquifoliaceae

Colour v light (Cra/75); slightly yellowish (Lov/56). **Pfund** light amber (Lov/56; Pel/76); 17-42 mm, white to extra light amber (Mot/64; Rof/75; Whi/62)

Viscosity "heavy body" (Cra/75; Pel/76)

Granulation slow (Lov/56; Mot/64)

Flavour v mild (Cra/75; Pel/76; Roo/74); aromatic after-taste (Lov/56)

232 Ilex theezans Mart.; Aquifoliaceae

Colour light (Wie/80)

237 Ipomoea batatas (L.) Lam.; Convolvulaceae

Colour earth yellow

Relative density 1.37

239 *Ipomoea sidifolia* Choisy; Convolvulaceae

Colour pearly white (Ord/44). Pfund white (Lov/56)

240 *Ipomoea triloba* L.; Convolvulaceae

Colour pearly white (Ord/44); v light (Ord/83)

Flavour delicate (Ord/83)

242 *Isoglossa deliculata* C.B. Clarke; Acanthaceae

Pfund water white (Tod/74)

Granulation slow if monoforal

Flavour mild but characteristic

243 *Ixerbe brexioides* A. Cunn.; Saxifragaceae

Colour dull white (Wal/78). Pfund white (Mao/82)

Other physical properties - froths

245 *Julbernardia globiflora* (Benth.) Troupin; Leguminosae

Pfund extra light amber (Cra/75); medium amber (Mou/72)

Relative density 1.4129 (Sil/76a)

Granulation slow, coarse (Cra/75); coarse brown crystals (Sil/76a)

248 *Julocroton triqueter* Baill.; Euphorbiaceae

Colour v light (Bar/68)

Viscosity low

249 *Khaya senegalensis* (Desv.) A. Juss.; Meliaceae

Flavour v acid (Ndi/74)

250 *Knightia excelsa* R.Br.; Proteaceae

Colour dark (God/52); reddish orange (Wai/75). Pfund amber (Mao/82a); dark amber (Rob/56); medium amber (Wal/78)

Viscosity "heavy body" (Cra/75; Wal/78). Optical rotation -6.96 deg (Kir/60)

Granulation slow, coarse (Cra/75; Mao/82; Wal/78)

Flavour rich, distinctive (Cra/75; Rob/56); slightly burnt, evident in blended honey (Cra/75; Wal/78); sweet like toffee (God/52); strong, sweet (Kir/60). **Aroma** strong (Wai/75)

252 Lavandula angustifolia Miller; Labiatae

Colour yellow (Bab/61); golden (Cra/75). **Pfund** dark amber (Cra/75); extra light amber (Lov/56)
Viscosity "good body" (Lov/56)
Granulation v smooth, then almost like butter (Cra/75)
Flavour delicate (Glu/55)

254 Lavandula latifolia Medicus; Labiatae

Colour fairly dark (Ske/72)

256 Lavandula angustifolia Miller x latifolia Medicus; Labiatae

Pfund white (Ric/78; Ske/72)
Granulation v fine (Ric/78); fine like butter (Ske/72)
Aroma strong (Ric/78)

257 Leonurus cardiaca L.; Labiatae

Colour straw-coloured (Fed/55); light (Lov/59)
Flavour mild (Lov/59)

258 Leonurus cardiaca L. subsp. villosus (Desf. ex Sprengel) Hyl.; Labiatae

Colour light (Lov/56); light orange (Pel/76)
Electrical conductivity 0.000086/ohm cm (Vor/64)

259 Leptospermum scopiarium J. & G. Forst.; Myrtaceae

Colour dark orange (Kir/60); varies with soil and intensity of flow (Wal/78). **Pfund** light amber (Cra/75; Rob/56); medium amber (Mao/82; Pur/68); 69.4 mm light amber, 140 mm dark amber after 44 days at 50° (Woo/76)
Viscosity (alert to beekeepers) thixotropic, difficult to extract from combs (Mao/82; Pry/50; Rob/56); easier on some soils in some areas of NEZ (Wal/78); "heavy body" (Sip/82)
Granulation slow, coarse (Nee/56; Rob/56)
Flavour distinctive, best in comb honey (Cra/75); of burnt sugar,

objectionable (Kir/60); strong (Mao/82); intensifies on extraction (Rob/56); fairly strong, v sweet and cloying (Wai/75). **Aroma** decreases on extraction (Rob/56)

264 Linum usitatissimum L.; Linaceae

Colour light (Ord/83). **Pfund** white (Cha/48); water white (Van/41)

265 Lippia nodiflora (L.) Michx.; Verbenaceae

Colour light (Pel/76). **Pfund** white or light amber (Mot/64); 27-34 mm, white (Whi/62)

Viscosity "heavy body" (Mot/64; Pel/76)

Granulation fine (Mot/64); rapid (Pel/76)

Flavour mild, distinctive (Mot/64); delicate, characteristic (Ord/83)

267 Liriodendron tulipifera L.; Magnoliaceae

Colour reddish - becoming less red but darker on storage (Cao/79); reddish amber (Glu/55; How/79); dark red (Lov/56); reddish brown (Maz/82); bright amber when fresh, becoming reddish with age (Roo/74). **Pfund** dark brown/amber (Cra/75; Pel/76); 50-114 mm, light amber to amber (Whi/62)

Viscosity "heavy body" (Cra/75); "v thick" (Roo/74)

Flavour mild, quince-like (Cra/75); strong (Die/71; How/79); distinctive (Lov/56). **Aroma** strong (Maz/82)

268 Litchi chinensis Sonner.; Sapindaceae

Colour light golden (Koh/58); light, may have reddish tinge, may be dark in dry yrs (Lov/67a). **Pfund** light amber (Lov/67a); light to dark amber (Mot/64; Ord/83); white (Zma/80)

Other physical properties - in dry yr, air bubbles take 3-4 mths to rise to top (Lov/67a)

Granulation medium, partial after several mths (Koh/58); slow (Lov/67a; Ord/83); rapid (Zma/80)

Flavour slightly acid (Ord/83)

269 Litsea stocksii Hook. f.; Lauraceae

Pfund dark amber (Ded/53)

Granulation rapid

Flavour like molasses

272 Lotus corniculatus L.; Leguminosae

Colour light (Cra/75); greenish (Ske/72). Pfund white (Lov/56)
 Viscosity "heavy body" (Lov/56). Electrical conductivity 0.000115
 per ohm cm (Vor/64)
 Granulation rapid (Ske/72)
 Flavour like clover (Lov/56)

274 Lythrum salicaria L.; Lythraceae

Colour reported as light (Cra/75; Lov/56; Pel/76); also dark
 (Cha/48; Cra/75; Dem/64; Wal/78); dark yellow (Fed/55); yellow-
 green or colour of machine oil (Lov/57f; Lov/64a). Pfund 34-42
 mm, extra light amber (Whi/62)
 Electrical conductivity 0.000306/ohm cm (Vor/64)
 Flavour strong (Cra/75; Wal/78); aromatic, sharp (Fed/55); like
 molasses (Lov/57f); in parts of Canada, reported to be affected
 by presence of pollen of plant (Hol/70)

277 Mackenzia integrifolia (Dalz.) Brem.; Acanthaceae

Colour colourless, transparent (Ded/83)
 Granulation rapid, uniform

279 Magnolia grandiflora L.; Magnoliaceae

Pfund dark (Lov/56); v dark (Pel/76)
 Flavour strong (Lov/56); strong, may be unpalatable (Pel/76)

280 Mahonia trifoliata (Moric.) Fedde; Berberidaceae

Pfund light amber (Ord/83)

282 Malus domestica Borkh.; Rosaceae

Pfund amber (Ric/78)
 Electrical conductivity 0.000212/ohm cm (Vor/64)
 Granulation irregular (Ric/78)
 Aroma of apples

283 Mangifera indica L.; Anacardiaceae

Colour reddish amber (Lov/61e); may be v dark (JAM, Ord/83).

Pfund amber (Cra/75; Ord/83; Pel/76); extra light amber (Lov/62b)
Flavour "interesting" (Lov/61e); distinctive (Mot/64); bees may collect juice from damaged fruit, which affects honey flavour (TRI, Lau/76)

284 Manihot glaziovii Muell. Arg.; Euphorbiaceae

Pfund amber (Woy/81)

Viscosity "thick"

Flavour bitter, unpalatable (Smt/56a; Smt/57)

285 Marquesia macroura Gilg; Dipterocarpaceae

Viscosity "consistency of stiff treacle" (Zam/79)

286 Marrubium vulgare L.; Labiatae

Colour greenish (Wal/78). **Pfund** dark amber (Cha/48; Pel/76; Pur/68); amber (Lov/56); medium amber (Wal/78)

Electrical conductivity 0.000085/ohm cm (Vor/64)

Granulation, then appears dark and dirty (Pur/68)

Flavour strong, resembling plant, or like horehound candy (Lov/56; Lov/56d); pronounced (Pel/76; Wal/78)

290 Medicago sativa L.; Leguminosae

Colour light, hardly affected by heating, 44-79° (Stn/81).

Pfund 27 mm, white (Bla/72; Ric/78; Roc/68); white or extra light amber (Lov/56); extra light amber to light amber (Pia/81); water white (Wal/78); <4 to 27 mm, water white to white (Whi/62); 12.1 mm, extra white (112.2 mm, amber after 44 days at 50°, Woo/76); **Pfund-Lovibond** grade (Aub/83)

Viscosity 472.00 poise (Moh/82); "good body" (Cra/75; Lov/56; Van/41). **Optical rotation** -36.50 deg (Bat/73); -6.27 deg (Moh/82)

Granulation rapid, hard fine grain (Bla/72); rapid (Cra/75; Pia/81) rapid, fairly hard white grain (Gom/73); slow (Moh/82); often irregular (Ric/78); dull appearance (Wal/78)

Flavour mild (And/73; Cra/75; Stn/81); unusual, slightly acid (Bla/72); insipid (Gom/73); strong, characteristically irritates the throat (Pia/81); flat, delicate (Wal/78). **Aroma** rather strong (Pia/81); delicate (Ric/78)

291 Melaleuca leucadendron (L.) L.; Myrtaceae**Colour** dark (Goo/47)**Granulation** rapid**Flavour** strong**293 Melaleuca quinquenervia (Cav.) S.T. Blake; Myrtaceae****Pfund** amber (Cra/75; Lov/55e; Mot/64; Pel/76)**Granulation** rapid (Mot/64)**Flavour** can be mild, distinct, also reported unpalatable (Cra/75; Pel/76); strong, unpleasant (Lov/56); strong, rather bitter, but loses objectionable flavour on stirring, heating or storing (Mot/64); a blend with only 5% of this honey is "inedible" (Tay/56). **Aroma** considerable, even penetrating (Cra/75); "v disagreeable" (Tay/56)**294 Melicoccus bijuga L.; Sapindaceae****Colour** quite dark (Mot/64; Ord/83)**Flavour** acid but "pleasant" (Ord/83)**296 Melilotus alba Desr.; Leguminosae****Colour** slightly green (Con/81); light (Pel/76). **Pfund** water white or white (Lov/56); 4-8 mm, water white (Whi/62)**Viscosity** "heavy body" (Lov/56). **Electrical conductivity** 0.000174 per ohm cm (Vor/64)**Granulation** rapid (How/79; Pel/76); within a week of removing from hive (USA/AK, Liv/84)**Flavour** of cinnamon (Con/81); mild (Lov/56); mild, peppery (Pel/76)**297 Melilotus officinalis (L.) Pall.; Leguminosae****Colour** light (Pel/76). **Pfund** white or amber (Ske/72)**Granulation** rapid (Pel/76)**Flavour** mild, slightly peppery (Pel/76). **Aroma** delicate, like vanilla (Ske/72)**298 Metrosideros excelsa Sol. ex Gaertn.; Myrtaceae****Pfund** water white (Cra/75); white (Mao/82)**Granulation** rapid, coarse (Cra/75; Mao/82)**Flavour** unique salty flavour (Cra/75)

299 Metrosideros robusta A. Cunn.; Myrtaceae

Pfund white (Mao/82; Rob/56); water white (Wal/78)
Viscosity "light body" (Rob/56)
Granulation rapid, fine silky grain (Rob/56; Wal/78)
Flavour delicate but distinctive (Mao/82); mild (Wal/78)

300 Metrosideros umbellata Cav.; Myrtaceae

Colour creamy white (Kir/60). **Pfund** water white (Cra/75); white (Mao/82)
Viscosity "light body" (Rob/56). **Optical rotation** -10.02 deg (Kir/60)
Granulation rapid, fine silky grain (Cra/75; Rob/56)
Flavour delicate but distinctive (Cra/75; Mao/82); v sweet (Kir/60)

301 Mikania scandens Willd.; Compositae

Colour fairly light (Lov/63)

302 Mimosa scabrella Benth.; Leguminosae

Colour light (Bah/70); yellowish (Bah/73)
Granulation rapid, creamy consistency (Apd/83); slow (Bah/73)
Flavour characteristic, acid (Apd/83); mild (Bah/70); slightly bitter (Wie/80)

306 Musa spp; Musaceae

Colour dark in JAM, light in AUS (Mot/64); dark (Ord/83)
Flavour astringent, like tamarind (Ord/83)

309 Nicotiana tabacum L.; Solanaceae

Colour dark (Ord/83); v dark (Pel/76). **Pfund** dark amber (And/73; Wal/78)
Viscosity "v heavy body" (Pel/76). **Optical rotation** 0.00 to -3.25 deg (Iva/78). **Electrical conductivity** 0.000302-0.000667/ohm cm (Iva/78)
Granulation slow (And/73; Pel/76)
Flavour burns the palate (And/73); bitter (Cra/73; Glu/55); strong, unpalatable (Pel/76; Wal/78). **Aroma** musty (And/73)

310 Nyssa aquatica L.; Nyssaceae

Colour chartreuse tint (Lov/66); darker than *N. ogeche* honey (Rof/75). **Pfund** white (Cra/75); light amber (Lov/66)

Viscosity "heavy body" (Lov/66)

Granulation slow (Cra/75)

Flavour mild (Cra/75; Lov/66); stronger than *N. ogeche* honey (Rof/75). **Aroma** mild (Lov/66)

311 Nyssa ogeche Bartram; Nyssaceae

Pfund light amber (Lov/56); light amber to amber (Rof/75); 34-70 mm, light amber (Whi/62)

Viscosity "good body" (Pel/76); "heavy body" (Rof/75)

Granulation slow, never if monofloral (Lov/56; Pel/76; Rof/75)

Flavour mild (Lov/56; Pel/76); mild but distinctive (Rof/75)

314 Onobrychis viciifolia Scop.; Leguminosae

Colour yellow (Bab/61); deep yellow, bright and sparkling (How/79); v clear, pale yellow (Lov/56); light yellow (Ric/78). **Pfund** light amber (Cra/75); 7.5 mm, water white (Dul/68); white to extra light amber (Pia/81)

Optical rotation -27.90 deg (Bat/73). **Electrical conductivity** 0.000140 per ohm cm (Vor/64)

Granulation rapid, fine, solid consistency (Spo/50); regular, fine-grained (Ric/78)

Flavour sweet, quite pronounced (Cra/75); characteristic (How/79); sweet, like fruit (Pia/81); less sweet than other honeys, sometimes characteristic (Spo/50). **Aroma** faint (Pia/81; Ric/78); delicate (Spo/50)

315 Opuntia engelmannii Salm-Dyck; Cactaceae

Pfund light amber (Cra/75; Pel/76); amber (Ord/83)

Viscosity high (Cra/75; Ord/83). **Other physical properties** - exhibits stringiness (Pel/76; Pry/50; Pry/52); also dilatancy (Pry/50; Pry/52)

Granulation - large crystals in clear liquid (Cra/75)

Flavour strong (Cra/75); v rank (Pel/76)

316 Oxydendron arboreum (L.) DC.; Ericaceae

Colour yellow (Mei/71); pinkish cast (Lov/59c). **Pfund** almost water white (Lov/56); 12-42 mm, white to extra light amber (Whi/62)

Viscosity "thick" (Mei/71); "heavy body" (Pel/76)
Granulation slow (Pel/76; Rof/75)
Flavour delicate, v slightly sour (Lov/56); distinctive (Lov/59c);
 slightly piquant (Mei/71); mild (Rof/75)

319 Parkinsonia aculeata L.; Leguminosae

Pfund amber (Lov/56; Mot/64)

320 Parthenocissus quinquefolia (L.) Planch.; Vitaceae

Colour slightly reddish cast (Lov/59a). **Pfund** light amber
Flavour distinctive

321 Persea americana Mill.; Lauraceae

Colour dark (Cra/75; Mot/64; Ord/83; Woy/81); v dark (Zma/80).
Pfund dark amber (And/73)
Viscosity "heavy body" (Cra/75); "thick" (Woy/81)
Granulation slow (And/73)
Flavour and aroma strong (And/73; Ord/83)

322 Persea caerulea (Ruiz & Pavon) Mez.; Lauraceae

Flavour bitter (Cra/73; Ste/71)

324 Phacelia tanacetifolia Benth.; Hydrophyllaceae

Colour sometimes light green (Glu/55; Lov/60a; Pel/76). **Pfund**
 amber (Cra/75; Pel/76); may be white (Glu/55)
Viscosity "flows freely" (Cra/75). **Electrical conductivity**
 0.000094/ohm cm (Vor/64)
Granulation rapid (Cra/75)
Flavour mild (Pel/76)

325 Phaseolus multiflorus L.; Leguminosae

Colour light (Joh/75). **Pfund** white (And/73; Fed/55)
Granulation slow, smooth to medium grain (And/73)
Flavour mild (And/73); little (Fed/55); honey from red fls v
 sweet (Glu/55). **Aroma** little (And/73)

328 Piscidia piscipula (L.) Sarg.; Leguminosae

Pfund extra white (Mul/77); amber (Ord/83)
Granulation slow or none (Mot/64)

331 Pithecellobium unguis-cati (L.) Mart.; Leguminosae

Pfund light amber (Mot/64; Ord/83)

334 Polygonum persicaria L.; Polygonaceae

Colour varies with soil, weather, and is affected by heating (Lov/57d); pinkish tinge (Roo/74). **Pfund** light to dark amber (Fed/55); white to amber (Lov/58)

Flavour strong, but less so than buckwheat honey; unusually mild in parts of IL (USA, Lov/57d); v strong (Roo/74). **Aroma** v strong (Lov/56); unpleasant particularly when fresh (Lov/57d)

335 Pongamia pinnata (L.) Pierre; Leguminosae

Colour dark (Mot/64)

Flavour sweet at first, with chalky after-taste (Mot/64)

338 Prosopis glandulosa Torrey; Leguminosae

Pfund 30-40 mm, white to extra light amber (Lov/56a); light amber (Roo/74)

Granulation rapid (Roo/74)

Flavour mild, sweet (Lov/57a)

339 Prosopis juliflora (Sw.) DC.; Leguminosae

Pfund v light amber (And/73)

Granulation medium (And/73)

340 Prosopis pallida (Humboldt & Bonpl. ex Willd.) Kunth;
Leguminosae

Pfund 1.9 mm, water white (2.1, 2.6 mm after 2, 22 h at 70°, Eck/52)

341 Prosopis pubescens Benth.; Leguminosae

Colour light (Lov/56). **Pfund** white (Lov/59f); amber (Ord/83)

342 Prunus x yedoensis Matsum.; Rosaceae

Colour golden (Inu/57); pale yellow (Waa/61)

Optical rotation -13.19 deg (Waa/61)

Granulation rapid

344 Psoralea pinnata L.; Leguminosae

Pfund light to extra light amber (Cra/75)

Viscosity "good body"

Granulation slow, coarse

Flavour distinctive, reminiscent of coconut

345 Pterocarpus rotundifolius (Sond.) Druce; Leguminosae

Colour dark red (Cri/57). **Pfund** medium amber (And/73)

Flavour strong (And/73; Cri/57)

347 Rabdosia rugosa (Wall. ex Benth.) Hara; Labiatae

Colour may be greenish (Sha/79). **Pfund** water white (Sha/79);

water white to light amber (Shr/59); almost water white (Sig/62)

Granulation fine (Sha/79; Sig/48); uniform, then colour creamy white (Shr/59); "looks like buffalo butter" (Sig/62)

Flavour mild (Sha/79); mild, improves on granulation (Sig/48)

351 Rhus glabra L.; Anacardiaceae

Colour golden when pure (Roo/74). **Pfund** amber (Con/81)

Viscosity "v heavy" (Roo/74)

Granulation [slow] does not granulate but goes waxy (Roo/74)

Flavour bitter when fresh, becomes mild but rich after few mths.

Aroma almost none

353 Rhus typhina L.; Anacardiaceae

Pfund amber (Cha/48)

354 Robinia pseudoacacia L.; Leguminosae

Colour pale yellow (Kee/77a); v clear (Pes/80); water clear, yellow tinge if not monofloral (Ric/78). **Pfund** 4-8 mm, water white (Whi/62; also Lov/56; Pia/81; Sha/79)

Relative density 1.414-1.435 (Bac/65); 1.4080-1.4440 (Cer/64).
Viscosity "heavy body" (Cra/75). **Optical rotation** -36.90 deg (Bat/73); -3.3 to -0.7 deg (Cer/64). **Electrical conductivity** 0.000095-0.000208 ohm/cm (Iva/78); other results are within this range (Dus/67; Pae/77; Pou/70)
Granulation slow, may take yrs (Dem/64; Kee/77a; Pes/80); small grain (Fed/55); large, slightly transparent crystals (Pia/81)
Flavour sweet (And/73; Cra/75); mild (Kee/77a); delicate, sweet like mature fruit (Pia/81); strong (Sha/79); analysis of flavour components (Wab/80). **Aroma** slight (And/73; Cra/75; Pes/80); reminiscent of flower, not persistent (Pia/81); strong (Sha/79)

355 Rosmarinus officinalis L.; Labiatae

Colour clear (Ske/72). **Pfund** white (Bab/61); water white (Lov/56)
Viscosity 166.00 poise (Moh/82). **Optical rotation** -10.33 deg.
Electrical conductivity not above 0.00025/ohm cm (Int/75)
Granulation medium (Moh/82); usually rapid, fine (Int/75)
Flavour and aroma distinctive (Int/75)

356 Roystonea regia (Kunth) O.F. Cook; Palmae

Colour golden yellow (Ord/44). **Pfund** light amber (Cra/75; Mot/64)
Flavour characteristic (Cra/75; Ord/83); strong (Mot/64).
Aroma characteristic (Ord/83)

357 Rubus spp [R. fruticosus L.]; Rosaceae

Colour light (Cra/75). **Pfund** white (Mao/82); water white (Rob/56)
Granulation slow (Cra/75); appears dull, waxy (Rob/56)
Flavour delicate, and like clover (Rob/56)

358 Rubus idaeus L.; Rosaceae

Pfund white (Wal/78)
Relative density 1.412-1.447 (Bac/65). **Electrical conductivity** (per ohm cm) 0.00023, 0.00027 (Dus/67); 0.000209 (Vor/64)
Flavour and aroma mild (Cra/75; Wal/78)

359 Rubus ulmifolius Schott.; Rosaceae

Pfund white (Ske/72)
Granulation (alert to beekeepers) may be v rapid, even in the hive (Ske/72)

360 Sabal florida Becc.; Palmae

Pfund white

361 Sabal palmetto (Walt.) Lodd. ex Schultes; Palmae

Colour light yellowish (Pel/76). Pfund light amber (Mot/64); 27-34 mm, white (Whi/62)

Viscosity "thin body" (Pel/76)

Flavour and aroma mild (Mot/64)

362 Saccharum officinarum L.; Gramineae

Colour dark (Mot/64)

Granulation rapid (Cra/84)

Flavour strong, distinctive

364 Salix caprea L.; Salicaceae

Colour golden yellow (Fed/55); v light (Gom/73). Pfund light amber (Wal/78)

Viscosity "thin" (Gom/73)

Granulation fine (Fed/55)

Flavour mild (Gom/73); distinctive, "swampy but not unpleasant" (Wal/78)

365 Salix nigra Marshall; Salicaceae

Pfund extra light to light amber (Lov/56)

Flavour "weedy" (Lov/56)

366 Salvia apiana Jepson; Labiatae

Pfund clear white (Lov/56); water white (Van/41)

Granulation [slow], does not granulate (Lov/56); does granulate, unlike other Salvias (Roo/74)

Flavour mild (Lov/56)

367 Salvia leucophylla Greene; Labiatae

Pfund clear white (Lov/77)

Granulation [slow] does not granulate

Flavour mild

368 Salvia mellifera Greene; Labiatae

Pfund water white (Lov/77; Van/41)

Granulation [slow], does not granulate (Lov/77)

Flavour mild

369 Salvia nemorosa L.; Labiatae

Electrical conductivity 0.000320/ohm cm (Vor/64)

370 Salvia officinalis L.; Labiatae

Colour light (How/79); pale yellow (Mur/76). Pfund amber (Fed/55); white (Pel/76)

Relative density 1.4320 (Mur/76). Electrical conductivity 0.000298/ohm cm (Vor/64)

Granulation slow (How/79; Maz/82)

Flavour "aromatic" (Fed/55)

371 Sapindus emarginatus Vahl; Sapindaceae

Colour light golden (Kri/70)

373 Sapindus mukorossi Gaertn.; Sapindaceae

Colour may be light golden (Cra/75). Pfund water white (Cra/75); water white to white (Sig/62)

Granulation fine, then colour milky white (Sig/48)

Flavour mild (Cra/75; Sig/62). Aroma develops on storage (Sig/48)

374 Sapindus saponaria L.; Sapindaceae

Flavour bitter, objectionable (Mul/79)

376 Satureia montana L.; Labiatae

Colour yellow (Bab/61); greenish (Vod/53)

378 Schefflera wallichiana Harms.; Araliaceae

Granulation fine (Schefflera sp, probably S. wallichiana, Kri/80)

379 Schinus terebinthifolius Raddi; Anacardiaceae

Pfund medium amber (Mot/64); amber (Ord/83)

Flavour distinctive, peppery (Mot/64); spicy (Mot/78). **Aroma** slightly pungent (Ord/83)

380 Sclerocarya caffra Sond.; Anacardiaceae

Colour light (And/73). **Pfund** (almost) water white to light amber (Cri/57)

Flavour "rich but mild" (And/73; Cri/57)

382 Serenoa repens (Bartr.) Small; Palmae

Colour rich yellow (Lov/55e); sometimes dark if bees collect berry juice (Mot/64). **Pfund** 34-50 mm, light amber (Whi/62)

Viscosity "thick and waxy" (Cra/75); "heavy body" (Lov/65a)

Granulation rapid (Rof/75); slow, soft grain (Lov/65a)

Flavour pronounced (Cra/75); mild (Lov/56; Lov/65a); distinctive (Lov/55e); sometimes strong, medicinal if bees collect berry juice (Mot/64). **Aroma** fragrant (Lov/65a)

384 Sesamum indicum L.; Pedaliaceae

Colour clear, light (Lov/65a); clear (Ord/83); dark (Zma/80).

Pfund v light amber (Cra/75); light amber (Lov/77)

Granulation slow (Zma/80); fine (Lov/65a)

385 Sicyos deppei G. Don; Cucurbitaceae

Colour yellowish tint (Lov/56c). **Pfund** extra light amber to light amber (Lov/56c); white (Pel/76)

Flavour mild (Lov/56c)

387 Sinapis alba L.; Cruciferae

Colour and some other properties similar to those of Brassica napus honey (Cra/75)

Granulation rapid (Wyk/53). **Alert to beekeepers** do not leave honey in hive for winter (Ave/78)

388 Sinapis arvensis L.; Cruciferae

Colour yellow (Glu/55). **Pfund** white to pale amber (How/79); white (Ske/72); light amber (Wal/78)

Granulation rapid, in 3 days when exposed to light (How/79); normally coarse (Lov/59a)

Flavour mild with slight sharpness (Lov/59a); mild, but when fresh may be slightly hot like mustard (How/79); "none" (Glu/55); delicate but rather hot (Wal/78)

389 Spondias mombin L.; Anacardiaceae

Pfund amber (Ord/83)

390 Stachys annua (L.) L.; Labiatae

Colour light yellowish (Maz/82). **Pfund** v light amber (Cra/75); white to extra light amber (Pia/81); white (Ric/78)

Viscosity "rather viscous" (Pia/81)

Granulation soft, fine (Cra/75); soft, fine-grained, then colour white (Maz/82); fine to medium grain (Pia/81); regular (Ric/78)

Flavour none, unless slightly acid due to fermentation (Pia/81).

Aroma v slight (Pia/81); strong (Ric/78)

391 Symphoricarpos albus (L.) S.F. Blake; Caprifoliaceae

Pfund white (Cha/48); amber (Lov/62); extra light amber (Pel/76)

Granulation slow (Pel/76)

Flavour mild (Lov/62)

395 Syzygium cumini (L.) Skeels; Myrtaceae

Colour light burnt sienna (Chu/65); light reddish brown (Ded/53).

Pfund amber (Koh/58; Naa/70); light amber (Mot/64)

Relative density 1.407 (Naa/70). **Viscosity** at 26° and 45°, approx 83 poise and 12 poise (Raj/70). **Optical rotation** -2.05 deg (Naa/70)

Granulation [slow] none after storing for yrs (Ded/53; Mot/64)

396 Syzygium jambos (L.) Alston; Myrtaceae

Pfund amber (Mot/64; Ord/83; Pha/62)

Relative density 1.415 (Pha/62). **Optical rotation** -36 minutes

Flavour mild, like sorghum syrup (Mot/64)

397 Tamarindus indica L.; Leguminosae

Colour dark (Cra/75); rich golden (Koh/58)

Viscosity "thin" (Koh/58)

Flavour sour (Khn/48); "quite sweet, but when swallowed tastes slightly acid like flower" (Koh/58)

398 Taraxacum officinale Weber; Compositae

Colour intense golden yellow (Cra/75); lemon yellow (Erb/83); bright yellow (Fos/56); deep yellow (Lov/56); dark (Pel/76); pale yellow (Ric/78). **Pfund** light amber to golden amber (Pia/81); medium amber (Wal/78); Lovibond-Pfund grade (Aub/83)

Viscosity "thick" (Glu/55). **Electrical conductivity** 0.000560/ohm cm (Vor/64)

Granulation rapid, coarse, hard (Cra/75); rapid, fine (Fos/56); rapid, fine-grained, regular (Pia/81; Ric/78)

Flavour sharp (Cra/75; Fos/56); sharp, strong, but can be mild (Lov/59); strong, characteristic and like animal glue (Pia/81).

Aroma pronounced (Cra/75; Fos/56); like the flowers (Lov/56); initially repellent (Pia/81); distinctive (Ric/78)

400 Terminalia bellerica (Gaertn.) Roxb.; Combretaceae

Flavour "nauseating" (Diw/64)

401 Terminalia chebula Retz.; Combretaceae

Colour light yellow (Chu/65; Naa/70; Pha/62). **Pfund** amber to dark amber (Sig/62); Pfund-Lovibond grade (Pha/62)

Relative density 1.416 (Naa/70); 1.42 (Pha/62). **Optical rotation** -4 deg 4 minutes (Naa/70); -1 deg 48 minutes (Pha/62)

Granulation medium (Naa/70)

Flavour characteristic (Sig/62). **Aroma** pungent

403 Thelepaepale ixiocephala (Benth.) Bremk.; Acanthaceae

Colour colourless, transparent (Chu/65); light yellow (Naa/70); colourless to light (Sur/75). **Lovibond** grade (Naa/70)

Relative density 1.409 (Naa/70); 1.405 (Pha/62). **Optical rotation** -1 deg 30 minutes (Naa/70); -1 deg 12 minutes (Pha/62)

Granulation rapid, uniform (Chu/65; Sur/75); rapid and complete soon after extraction (Pha/65); medium, within 20-30 days (Naa/70)

406 Thymus serpyllum L.; Labiatae

Pfund light amber (Cha/48); v light amber (Pel/76); 50-70 mm, light amber (Whi/62)

Viscosity "good body" (Pel/76)

Flavour and aroma strong, minty (Lov/56)

407 Thymus vulgaris L.; Labiatae

Colour golden amber (Cra/75). **Pfund** amber (Erb/83); medium amber (Wal/78)

Viscosity at 20°, 205.80 poise (Moh/82). **Optical rotation** -10.53 deg

Granulation slow

Flavour fairly strong, distinctive (Bry/77); v strong (Mao/82a); rather minty flavour which does not fade on storage (Wal/78).

Aroma strong (Cra/75); fragrant (Glu/55)

408 Tilia americana L.; Tiliaceae

Pfund white (Cha/48; Pel/76); water white (Lov/56); 27-34 mm, white (Whi/62)

Flavour rather strong (Lov/56; Pel/76)

410 Tilia cordata Mill.; Tiliaceae

Colour water clear (Maz/82); honeydew honey dark green (from E. tiliae, Klo/65)

Electrical conductivity 0.000289/ohm cm (?honeydew honey, Vor/64)

Granulation - colour whitish, light yellow or greenish (Maz/82); honeydew honey granulates v slowly although melezitose content high (Klo/65)

Flavour "pepperminty" (Maz/82); "lime honeydew honey tastes of treacle" (How/79). **Aroma** of lime, strong

413 Tilia mandschurica Rupr. & Maxim.; Tiliaceae

Pfund white (Glu/55)

415 Tilia platyphyllos Scop.; Tiliaceae

Colour honeydew honey dark green (from Eucallipterus tiliae, Klo/65)

Granulation honeydew honey v slow, although melezitose content high (Klo/65)

420 Tithonia tubaeformis Cass.; Compositae

Pfund light amber (Ord/83); with Lippia umbellata this sp gives water-white honey in the Sierra Madre, MEX (Brs/82)

Viscosity "v thick" (Ord/83)

Granulation rapid, 2-3 days after extraction

421 Toona ciliata M. Roem.; Meliaceae

Pfund white to light amber (Sig/62)

Flavour pronounced

422 Tournefortia argentea L.f.; Boraginaceae

Colour deep gold to red to almost black

Flavour strong

423 Trichilia havanensis Jacq.; Meliaceae

Pfund light amber (Ord/72; Ord/83)

424 Trichostema lanceolatum Benth.; Labiatae

Pfund white (Lov/56; Pel/76; Van/41)

Granulation rapid, fine (Pel/76; Van/41)

Flavour mild (Lov/56)

426 Trifolium alexandrinum L.; Leguminosae

Viscosity at 20°, 78.14 poise (Moh/82). Optical rotation -8.74 deg

Granulation slow

427 Trifolium fragiferum L.; Leguminosae

Pfund white (Wal/78)

Viscosity "rather light body"

Flavour delicate

428 Trifolium hybridum L.; Leguminosae

Colour light (Fed/55). Pfund white (Cra/75; Lov/56e); 17-27 mm, white (Whi/62); white to extra light amber (Van/41)

Viscosity "heavy body" (Lov/56e)

Granulation rapid (Cra/75)

Flavour mild (Cra/75; Pel/76); delicate (Lov/56e)

429 Trifolium incarnatum L.; Leguminosae

Colour yellowish tinge (Lov/56); v light yellow (Pel/76); pale (Ric/78); light yellow (Ske/72). **Pfund** extra light amber (Lov/56); 4-27 mm, water white to white (Whi/62; also Pia/81)

Viscosity "good body" (Lov/56; Lov/57c)

Granulation, whitish solid "paste" but grains redissolve readily (Pia/81)

Flavour delicate, nondescript (Pia/81). **Aroma** can be rather strong (Lov/57c); v slight (Pia/81); almost none (Ric/78)

430 Trifolium pratense L.; Leguminosae

Colour reddish or pinkish tinge (Lov/56; Pel/76). **Pfund** water white (Cra/75); light amber (Lov/56)

Granulation rapid (Cra/75)

Flavour mild (Cra/75). **Aroma** almost none (Ric/78)

431 Trifolium repens L.; Leguminosae

Colour bright yellow (Dus/72); bright (How/79); clear (Wie/80). **Pfund** white (Fed/55; Lov/56; Pia/81; Rob/56); 8.1 mm, extra white (Lan/66); 32 mm, white (Peo/72); 4-59 mm, extra white to light amber, darkens on storage (Roc/68; also Bla/72); 27-42 mm, white to extra light amber (Whi/62)

Electrical conductivity (per ohm cm) 0.000127-0.000538 (Rav/75); 0.000192 (Vor/64)

Granulation rapid, transparent and slightly coarse grain (Bla/72); slow, uniform (Cra/75); slow, fine, smooth and white like lard (How/79); rapid (Lov/56); mixture of fine and coarse grains (Pia/81); fine, homogeneous (Sci/81)

Flavour characteristic, mild, sweet (Bla/72); mild (Cra/75; Lov/56; Rob/56); acrid (Mot/64); slight but persistent, with delicate aftertaste (Pia/81). **Aroma** sweet (Fed/55; Glu/55); delicate, like the flower (Pia/81); delicate (Rob/56)

432 Trifolium resupinatum L.; Leguminosae

Colour light (Cra/75)

434 Turbina corymbosa (L.) Raf.; Convolvulaceae

Colour transparent (Ord/83). **Pfund** water white, said to be the lightest in the world (Cra/75)

Optical rotation -26 deg (Ord/83)

Flavour delicate (Cra/75)

436 Vernonia polyanthes Less.; Compositae

Colour golden (Bar/68); light (Ord/83). **Pfund** 11.5 mm, extra white (Fle/63)

Viscosity "thick" (Bar/68)

438 Vicia faba L.; Leguminosae

Colour light but dark if honeydew present (Cra/75). **Pfund** white (Cha/48); light to dark amber (How/79)

Granulation often rapid, coarse (Cra/75); fairly rapid, coarse (How/79)

Flavour mild (Cra/75; How/79)

440 Vicia villosa Roth; Leguminosae

Colour light (Cra/75). **Pfund** water white (Lov/56); 4-42 mm, water white to extra light amber (Whi/62)

Viscosity "heavy body" (Cra/75)

Granulation rapid

Flavour mild (Cra/75); v mild (Lov/56)

441 Viguiera helianthoides Kunth; Compositae

Colour light (Cra/75). **Pfund** dark amber (Ord/44); light amber (Ord/83)

Granulation rapid (Cra/75)

Flavour and aroma pronounced

444 Weinmannia racemosa L.f.; Cunoniaceae

Colour distinctive, green (Wai/75). **Pfund** extra light amber (Cra/75; Wal/78); light amber (Rob/56)

Granulation coarse, uneven (Cra/75; Rob/56)

Flavour bitter, increasing with age and dominant in blends (Cra/75; Wal/78); distinctive (Mao/82a); pronounced, bitter (Rob/56); not v sweet (Wai/75)

447 Ziziphus jujuba Mill.; Rhamnaceae

Pfund amber (Mad/81)

Granulation slow

Flavour extra sweet

448 Ziziphus mauritania Lam.; Rhamnaceae

Colour yellow brown (Lin/77). Pfund amber (Mad/81)

Relative density 1.38 (Lin/77)

Granulation slow (Mad/81)

Flavour extra sweet

449 Ziziphus mucronata Willd.; Rhamnaceae

Pfund dark (And/73)

452 Ziziphus spina-christi (L.) Desf.; Rhamnaceae

Pfund white (Dut/77)

HONEYES FROM PLANTS YIELDING HONEYDEW ONLY

01D Abies alba Miller; Pinaceae

Colour, from *Cinara pectinatae*: black-brown with greenish tinge (mid EUR, Klo/65); white, yellow or brown (in combs, FRA, Bab/56); insect not specified: dark green (AUT, Kir/61; YUG, Kul/59); khaki green (GFR, Kir/61); v dark, often slightly greenish (ITA, Ric/78)

Optical rotation +2.89 deg (Bat/73); +9.55, +2.87 deg (insect not specified, AUT, GFR, Kir/61)

Granulation (alert to beekeepers) v rapid, in combs, difficult to extract (from *Cinara pectinatae*, FRA, Bab/56); rapid (YUG, Kul/59); none, or irregular (ITA, Ric/78); medium, becoming more green (GFR, Vor/68)

Flavour of treacle (AUT, Kir/61); v sweet (GFR, Kir/61); mild to resinous (aromatic) (GFR, Vor/68); "tonic" (ITA, Ric/78)

04D Calocedrus decurrens (Torr.) Florin; Cupressaceae

Pfund 104 to >114 mm, amber to dark amber (insect not specified, USA/LA, Whi/62)

Viscosity "heavy body" (USA, Pel/76)

Granulation slow

Flavour bland

06D Larix decidua Miller; Pinaceae

Granulation (alert to beekeepers) v rapid, in combs (from C. laricis, Klo/65; Mal/79; Ric/78); colour then white (Mal/79)

07D Nothofagus solandri var. cliffortioides (Hook. f.) Poole; Fagaceae

Colour brown (beech honeydew honey, Dal/75)

Flavour distinctive (Coo/81). **Aroma** strong (Dal/75)

08D Picea abies (L.) Karsten; Pinaceae

Colour dark red brown (from Cinara piceae), reddish (from C. pilicornis), reddish brown (from Physokermes hemicryphus) (mid EUR, Klo/65); buff (insect not specified, AUT, Kir/61); greenish black (insect not specified) (SWI, Pel/76)

Optical rotation +3.48 deg (AUT, Kir/61)

Granulation slow (from C. piceae), slow (from C. pilicornis) (Klo/65)

Flavour fairly sweet (AUT, Kir/61)

09D Pinus halepensis Miller; Pinaceae

Colour dark (insect not specified, ALG, Ske/72). **Pfund** light amber (from Marchalina hellenica, GRC, Nic/55)

Viscosity "good body"

Granulation [slow] does not granulate

Flavour characteristic (Ske/72)

10D Pinus sylvestris L.; Pinaceae

Optical rotation laevorotatory (presumed P. sylvestris, CZE, Svo/56). **Electrical conductivity** 0.00112, 0.0012 ohm cm (Dus/67)

12D Quercus robur L.; Fagaceae

Colour "less dark than other honeydew honeys" (insect not specified, ITA, Ric/78)

Flavour sweet, also slightly sharp. **Aroma** intense

14D Quercus virginiana Mill.; Fagaceae

Pfund 85 to >114 mm, amber to dark amber (Whi/62, see note under **Water**). **Colour** dark (from live oak gall, USA/TX, Pel/76)

Viscosity "heavy" (Pel/76)

15D Zea mays L.; Gramineae

Colour yellow (USA/IA, Pel/76); dark (USA/TX, Pel/76)

Granulation v coarse (USA/IA, Pel/76)

Flavour "peculiar", like corn silk

3. LIST OF HONEYS REPORTED TO GRANULATE SLOWLY

Honey from these plants is reported not to granulate completely until after one year.

- 005 *Acacia mellifera* (Vahl) Benth.; Leguminosae
 014 *Acer pseudoplatanus* L.; Aceraceae
 031 *Anchusa officinalis* L.; Boraginaceae
 034 *Antigonon leptopus* Hook. & Arn.; Polygonaceae
 035 *Asclepias syriaca* L.; Asclepiadaceae
 044 *Berchemia scandens* (Hill) K. Koch; Rhamnaceae
 045 *Bidens pilosa* L.; Compositae
 072 *Calluna vulgaris* (L.) Hull; Ericaceae
 077 *Carvia callosa* (Nees) Brem.; Acanthaceae
 080 *Castanea sativa* Mill.; Fagaceae
 097 *Citrus sinensis* (L.) Osb.; Rutaceae
 124 *Daniellia oliveri* (Rolfe) Hutch & Dalz.; Leguminosae
 158 *Eucalyptus cladocalyx* F. Muell.; Myrtaceae
 160 *Eucalyptus crebra* F. Muell.; Myrtaceae
 165 *Eucalyptus ficifolia* F. Muell.; Myrtaceae
 175 *Eucalyptus maculata* Hook.; Myrtaceae
 176 *Eucalyptus melliodora* A. Cunn. ex Schauer; Myrtaceae
 179 *Eucalyptus panda* S.T. Blake; Myrtaceae
 180 *Eucalyptus paniculata* Smith; Myrtaceae
 182 *Eucalyptus polyanthemos* Schauer; Myrtaceae
 197 *Eupatorium odoratum* L.; Compositae
 198 *Euphoria longan* (Lour.) Steud.; Sapindaceae
 200 *Faurea saligna* Harv.; Proteaceae
 216 *Guizotia abyssinica* Cass.; Compositae
 230 *Ilex glabra* (L.) A. Gray; Aquifoliaceae
 242 *Isoglossa deliculata* C.B. Clarke; Acanthaceae
 245 *Julbernardia globiflora* (Benth.) Troupin; Leguminosae
 246 *Julbernardia paniculata* (Benth.) Troupin; Leguminosae
 250 *Knightia excelsa* R.Br.; Proteaceae
 259 *Leptospermum scoparium* J. & G. Forst.; Myrtaceae
 309 *Nicotiana tabacum* L.; Solanaceae
 310 *Nyssa aquatica* L.; Nyssaceae
 311 *Nyssa ogeche* Bartram; Nyssaceae
 316 *Oxydendron arboreum* (L.) DC.; Ericaceae
 321 *Persea americana* Mill.; Lauraceae
 325 *Phaseolus multiflorus* Lam.; Leguminosae
 328 *Piscidia piscipula* (L.) Sarg.; Leguminosae
 340 *Prosopis pallida* (Humboldt & Bonpl. ex Willd.) Kunth;
 Leguminosae
 344 *Psoralea pinnata* L.; Leguminosae
 351 *Rhus glabra* L.; Anacardiaceae
 354 *Robinia pseudoacacia* L.; Leguminosae
 357 *Rubus* spp [R. fruticosus L.]; Rosaceae

- 367 *Salvia leucophylla* Greene; Labiatae
 368 *Salvia mellifera* Greene; Labiatae
 370 *Salvia officinalis* L.; Labiatae
 384 *Sesamum indicum* L.; Pedaliaceae
 391 *Symphoricarpos albus* (L.) S.F. Blake; Caprifoliaceae
 395 *Syzygium cuminii* (L.) Skeels; Myrtaceae
 407 *Thymus vulgaris* L.; Labiatae
 426 *Trifolium alexandrinum* L.; Leguminosae
 447 *Ziziphus jujuba* Mill.; Rhamnaceae
 448 *Ziziphus mauritania* Lam.; Rhamnaceae
- 04D *Calocedrus decurrens* (Torr.) Florin; Cupressaceae
 08D *Picea abies* (L.) Karsten; Pinaceae
 09D *Pinus halepensis* Miller; Pinaceae

4. LIST OF HONEYS REPORTED TO GRANULATE RAPIDLY

Honey from these plants is reported to granulate within two weeks.

- 008 *Acacia senegal* (L.) Willd.; Leguminosae
 019 *Aegiceras corniculatum* (L.) Blanco; Myrsinaceae
 020 *Aesculus hippocastanum* L.; Hippocastanaceae
 023 *Aloe davyana* Schonl.; Liliaceae
 025 *Aloe mutans* Reynolds; Liliaceae
 026 *Aloysia gratissima* (Gill. & Hook.) Troncoso; Verbenaceae
 028 *Ampelopsis arborea* (L.) Koehne; Vitaceae
 037 *Avicennia germinans* (L.) L.; Avicenniaceae
 042 *Banksia serrata* L.f.; Proteaceae
 054 *Brassica campestris* L.; Cruciferae
 060 *Brassica napus* L. var. *oleifera* DC.; Cruciferae
 084 *Centaurea solstitialis* L.; Compositae
 118 *Cucurbita pepo* L.; Cucurbitaceae
 139 *Echium lycopsis* L.; Boraginaceae
 144 *Epilobium angustifolium* L.; Onagraceae
 146 *Erica cinerea* L.; Ericaceae
 152 *Eucalyptus albens* Benth.; Myrtaceae
 154 *Eucalyptus caleyi* Maiden; Myrtaceae
 156 *Eucalyptus camaldulensis* Dehnh.; Myrtaceae
 159 *Eucalyptus cornuta* Labill.; Myrtaceae
 167 *Eucalyptus gomphocephala* DC.; Myrtaceae
 169 *Eucalyptus grandis* W. Hill ex Maiden; Myrtaceae
 172 *Eucalyptus leucoxylon* F. Muell.; Myrtaceae
 177 *Eucalyptus moluccana* Roxb.; Myrtaceae
 187 *Eucalyptus sideroxylon* A. Cunn. ex Woolls; Myrtaceae
 189 *Eucalyptus tereticornis* Smith; Myrtaceae

- 201 *Fuchsia excorticata* (J. & G. Forst.) L.f.; Onagraceae
 207 *Glycine max* (L.) Merr.; Leguminosae
 221 *Helianthus annuus* L.; Compositae
 223 *Hevea brasiliensis* Muell. Arg.; Euphorbiaceae
 265 *Lippia nodiflora* (L.) Michx.; Verbenaceae
 269 *Litsea stocksii* Hook. f.; Lauraceae
 272 *Lotus corniculatus* L.; Leguminosae
 277 *Mackenzia integrifolia* (Dalz.) Brem.; Acanthaceae
 290 *Medicago sativa* L.; Leguminosae
 291 *Melaleuca leucadendron* (L.) L.; Myrtaceae
 293 *Melaleuca quinquenervia* (Cav.) S.T. Blake; Myrtaceae
 296 *Melilotus alba* Desr.; Leguminosae
 297 *Melilotus officinalis* (L.) Pall.; Leguminosae
 298 *Metrosideros excelsa* Sol. ex Gaertn.; Myrtaceae
 299 *Metrosideros robusta* A. Cunn.; Myrtaceae
 300 *Metrosideros umbellata* Cav.; Myrtaceae
 314 *Onobrychis viciifolia* Scop.; Leguminosae
 324 *Phacelia tanacetifolia* Benth.; Hydrophyllaceae
 338 *Prosopis glandulosa* Torrey; Leguminosae
 342 *Prunus x yedoensis* Matsum.; Rosaceae
 355 *Rosmarinus officinalis* L.; Labiatae
 359 *Rubus ulmifolius* Schott.; Rosaceae
 382 *Serenoa repens* (Bartr.) Small; Palmae
 387 *Sinapis alba* L.; Cruciferae
 388 *Sinapis arvensis* L.; Cruciferae
 398 *Taraxacum officinale* Weber; Compositae
 403 *Thelepaepale ixiocephala* (Benth.) Bremk.; Acanthaceae
 420 *Tithonia tubaeformis* Cass.; Compositae
 424 *Trichostema lanceolatum* Benth.; Labiatae
 428 *Trifolium hybridum* L.; Leguminosae
 430 *Trifolium pratense* L.; Leguminosae
 438 *Vicia faba* L.; Leguminosae
 440 *Vicia villosa* Roth; Leguminosae
 441 *Viguiera helianthoides* Kunth; Compositae

01D *Abies alba* Miller; Pinaceae

06D *Larix decidua* Miller; Pinaceae