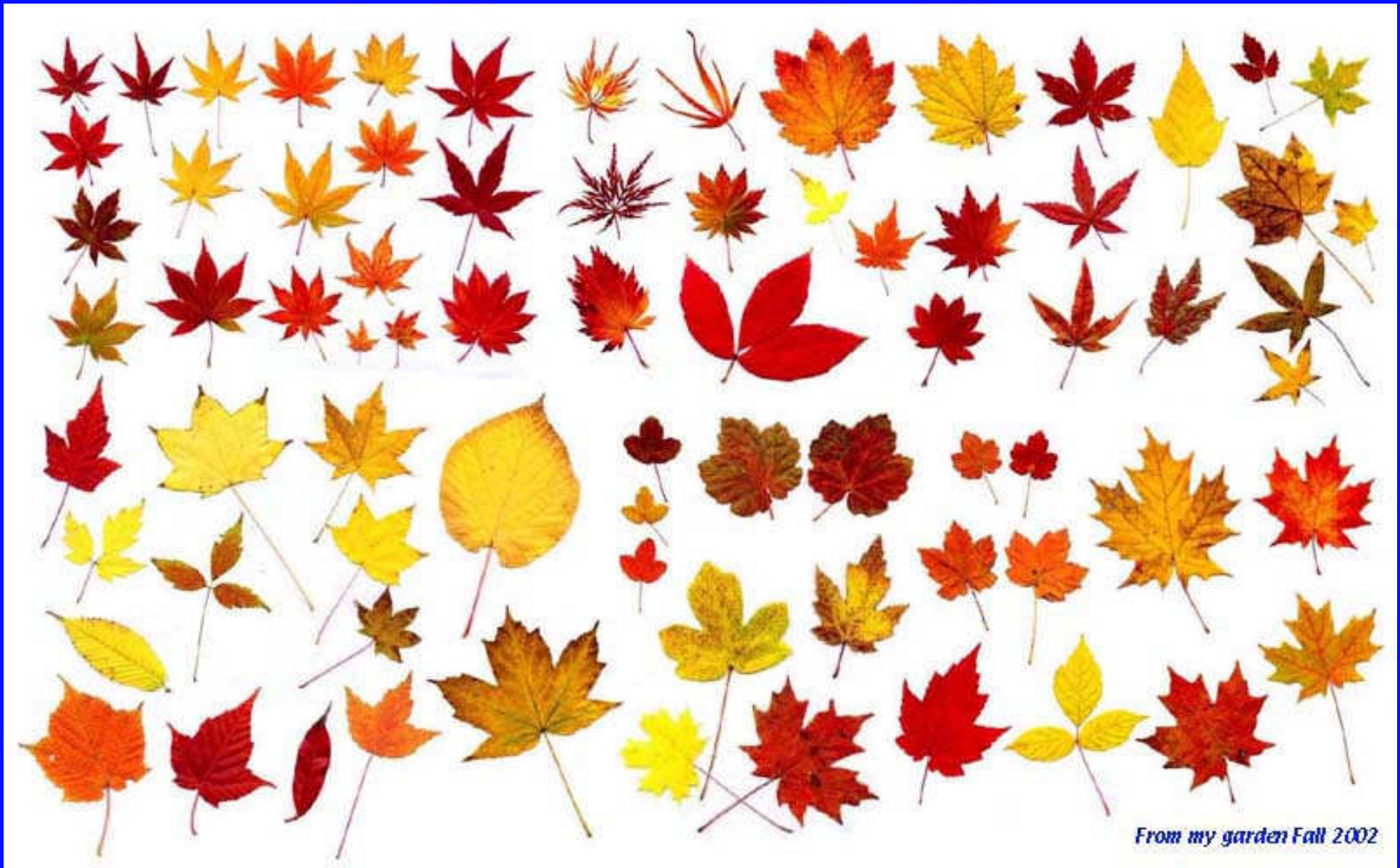


Eulogy for Acer ...

For an all too brief period each autumn the woods of North America and the Orient, and many gardens throughout the temperate world, are ablaze with scarlet, gold, and yellow when maples, the most spectacular of all trees, adorn the countryside. Maples delight the eye, provide one of nature's finest sweets, and hold their own as timber with even the mighty oaks. Throughout the ages people have been enchanted with this magnificent and versatile genus of trees known as Acer.

(Oterdoom 1994)



From my garden Fall 2002

(Hajime Hayashida)



Aceraceae or Sapindaceae ?

Eurocentrist or globalist ?

Acer = ???

- **a Taiwan-based computer company**
- **a genus of trees and shrubs**
- ***Armored Combat Engineer Robot, by Mesa Robotics***
- ***Australian Council for Educational Research***
- **David Acer, Canadese stand-up comedian**
- **David J. Acer, Florida dentist, who died of aids in 1990**

Acer etymology (and pronunciation ?)

ac- = pointed

akros (Greek) = pointed (e.g. Akropolis)

acer (Latin) = sharp

e.g.

Acanthus

Actinoscirpus = sedge with star-shaped inflorescence

Acer = pointed leaves ? or : extremely hard wood ? (spears !)

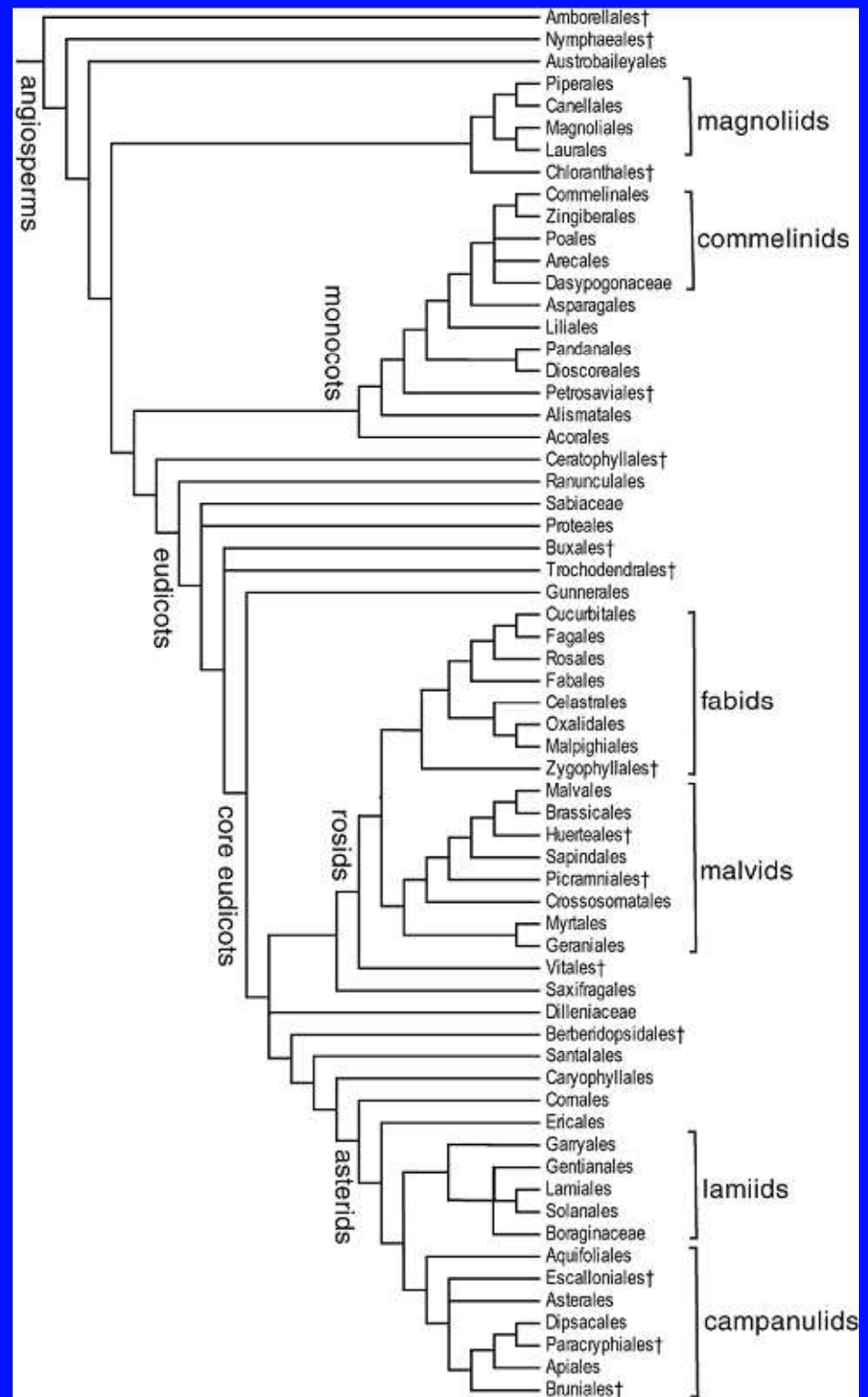
Classification APG III 2009

Angiosperm Phylogeny Group

eudicots

malvids

Sapindales



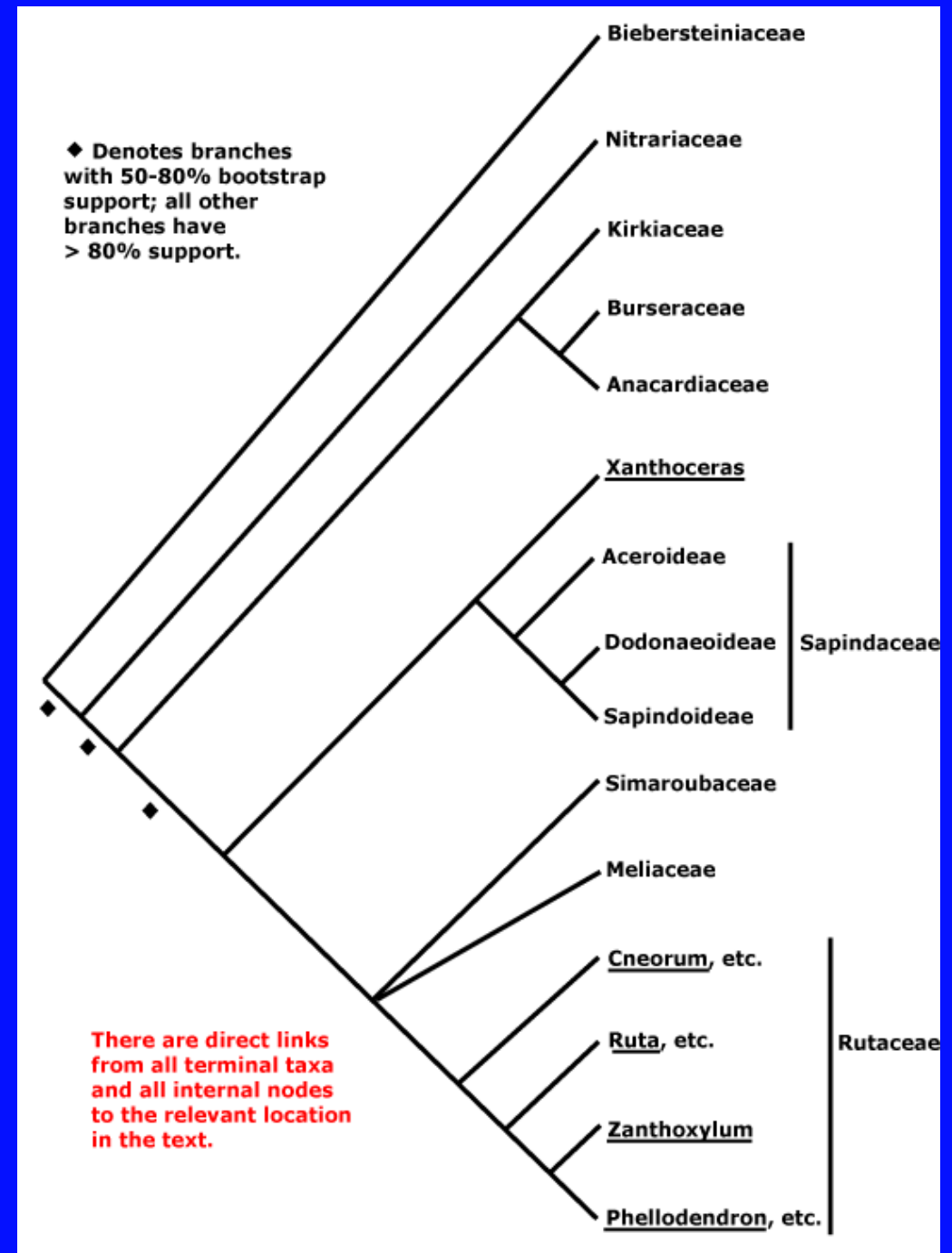
order Sapindales

9 families
482 genera
6001 species

usually :

trees with pinnate leaves

(noxious) secondary metabolites



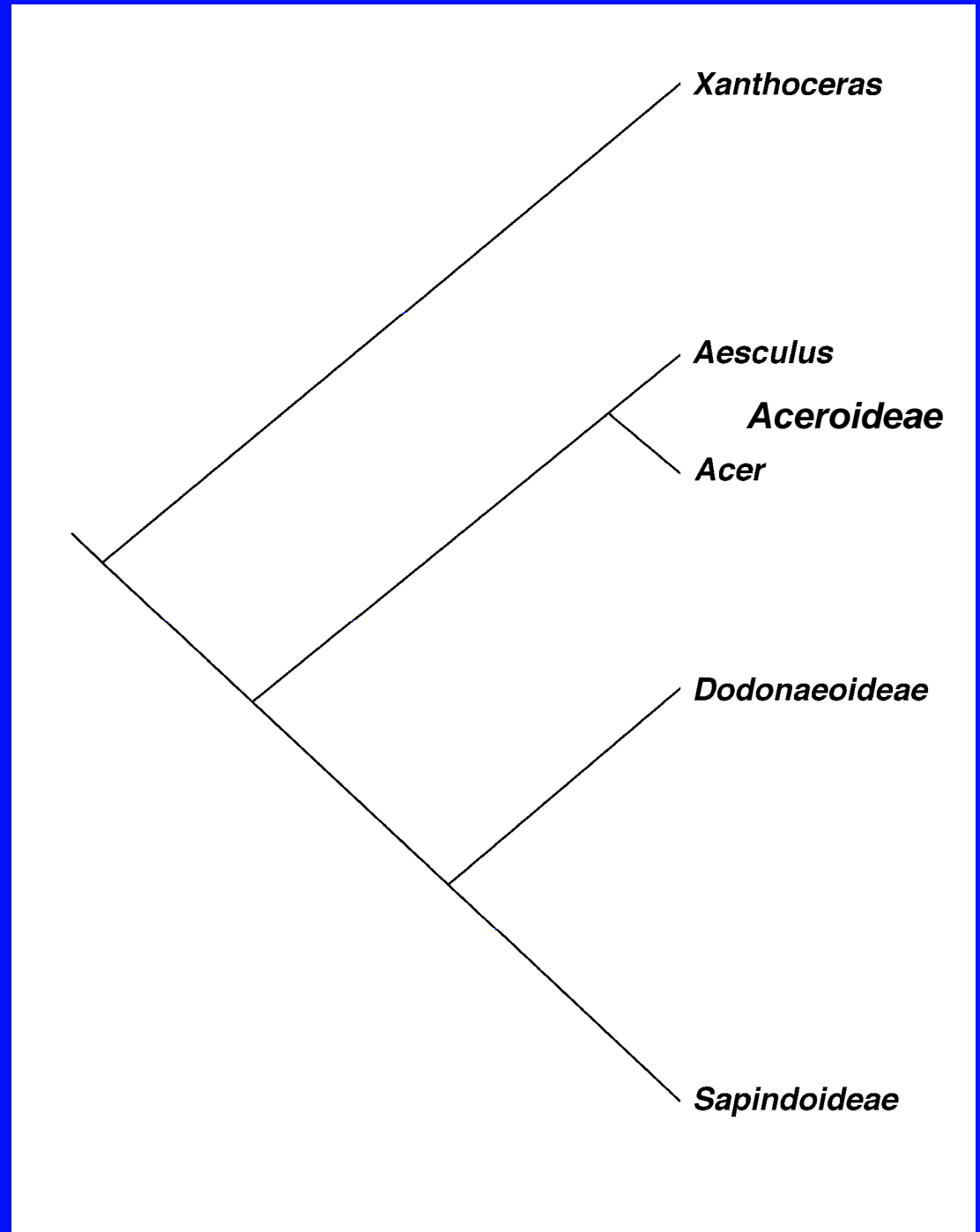
(www.mobot.org/MOBOT/Research/APweb)

Sapindaceae sensu lato :

molecular phylogeny

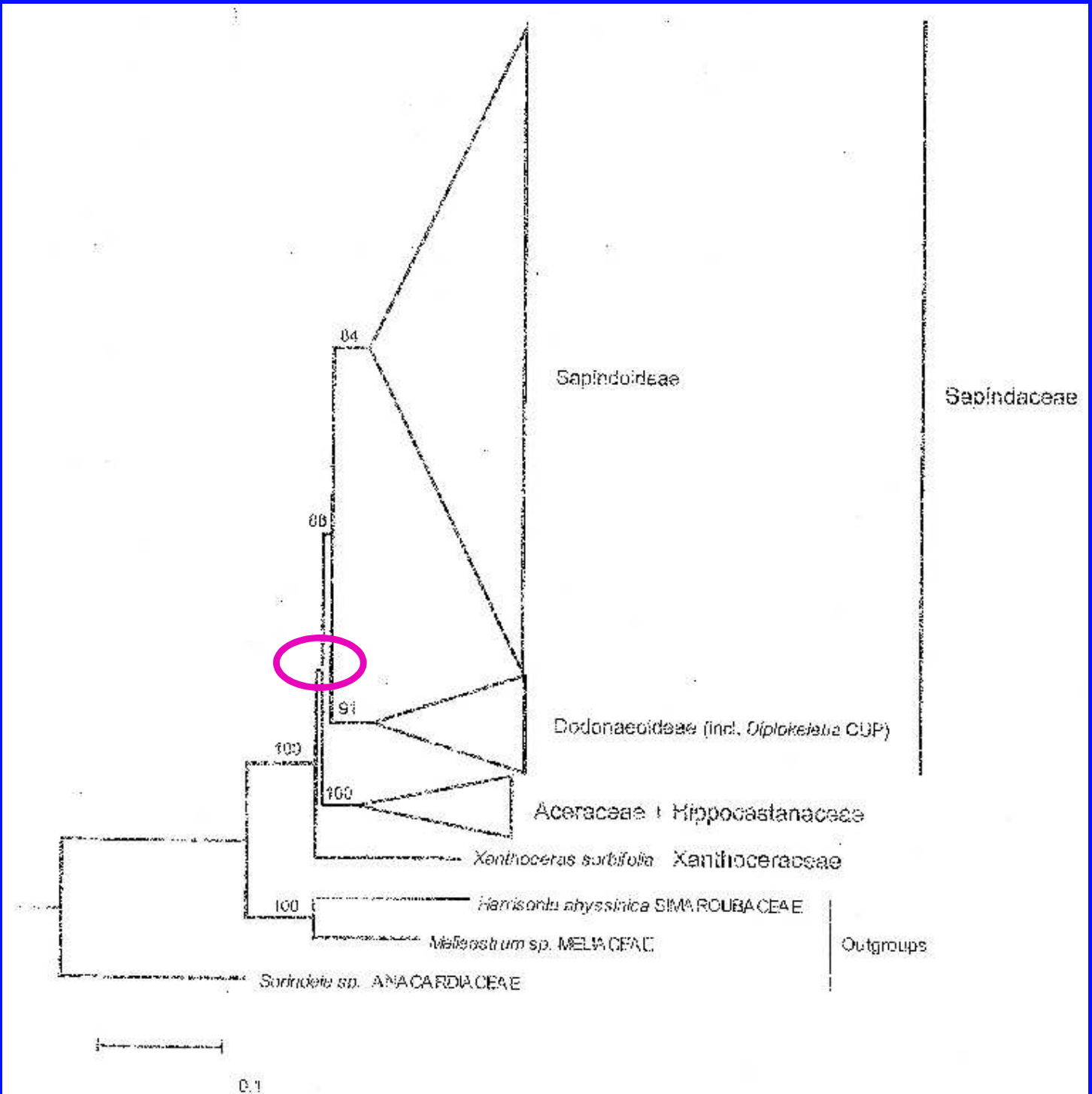
- 4 evolutionary lines
- *Aesculus* & *Acer*
- = sistergroups

(after Harrington et al. 2005)



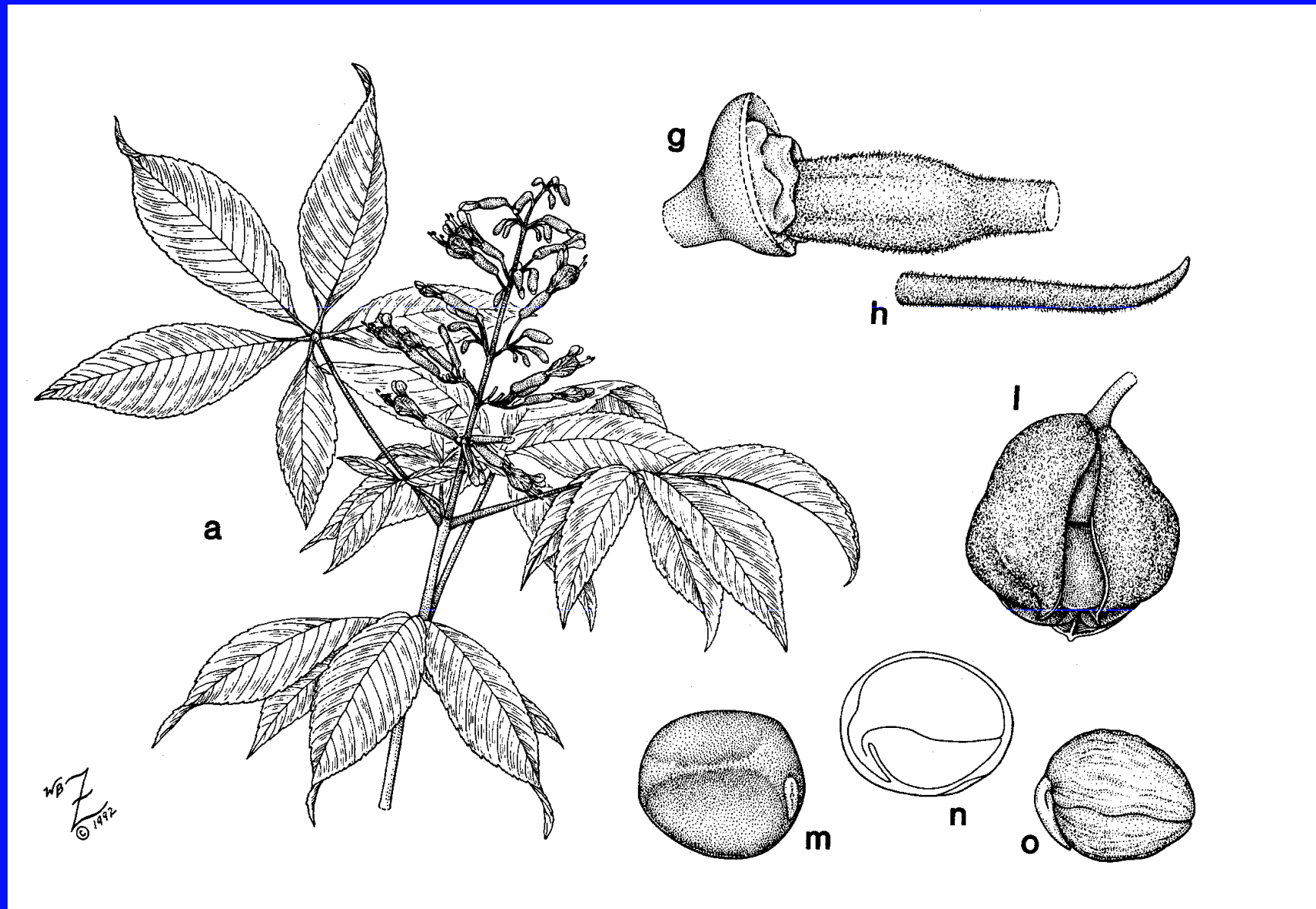
Sapindaceae sensu lato :

molecular phylogeny



(Buerki et al. 2010)

Aesculus pavia : leaves decussate, 5-palmate



(Zomlefer 1994)

***Acer pentaphyllum* : leaves decussate, 5-palmate**



Winter buds : Aesculus parviflora



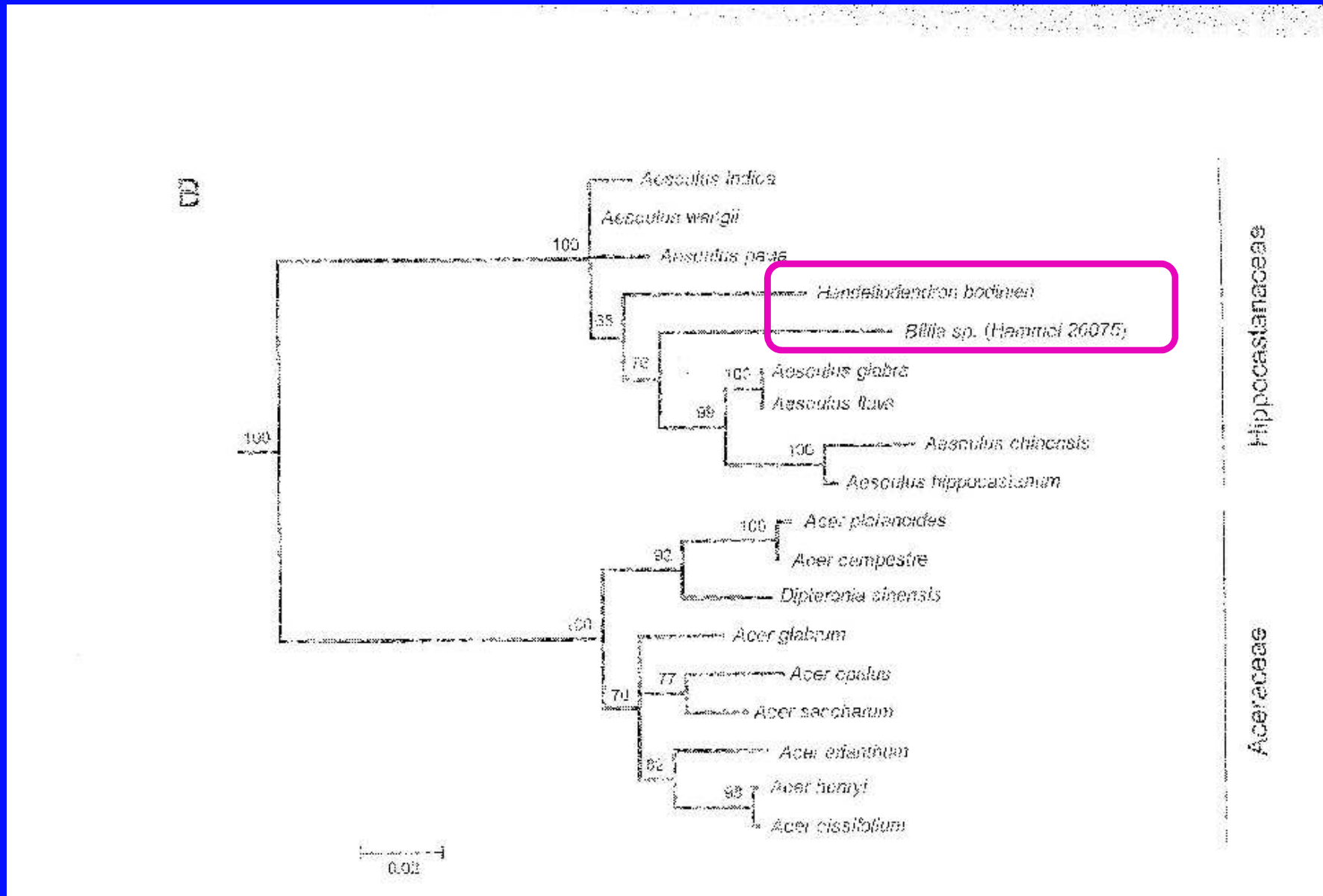
bud scale = petiole of leaf, petiole base broadly sessile !

Winter buds : Acer rufinerve (sectio Macrantha)



2 pairs of scales

Sapindaceae sensu lato : phylogeny



(Buerki et al. 2010)

Handeliodendron bodinieri



Handeliodendron bodinieri



Figure 1. 1-3. *Handeliodendron bodinieri* (H. Léveillé) Reider, 学名木: zhang ye mu. —1. Fruiting branch. —2. Portion of inflorescence. —3. Flower with perianth removed showing stamens, pistil, and disk. (FOC 1; PRFS 47(1) 62, pl. 21, 1985. —黄少蓉 Huang Shaorong).

***Billia rosea* leaves and inflorescence**



Billia rosea flower



Billia rosea

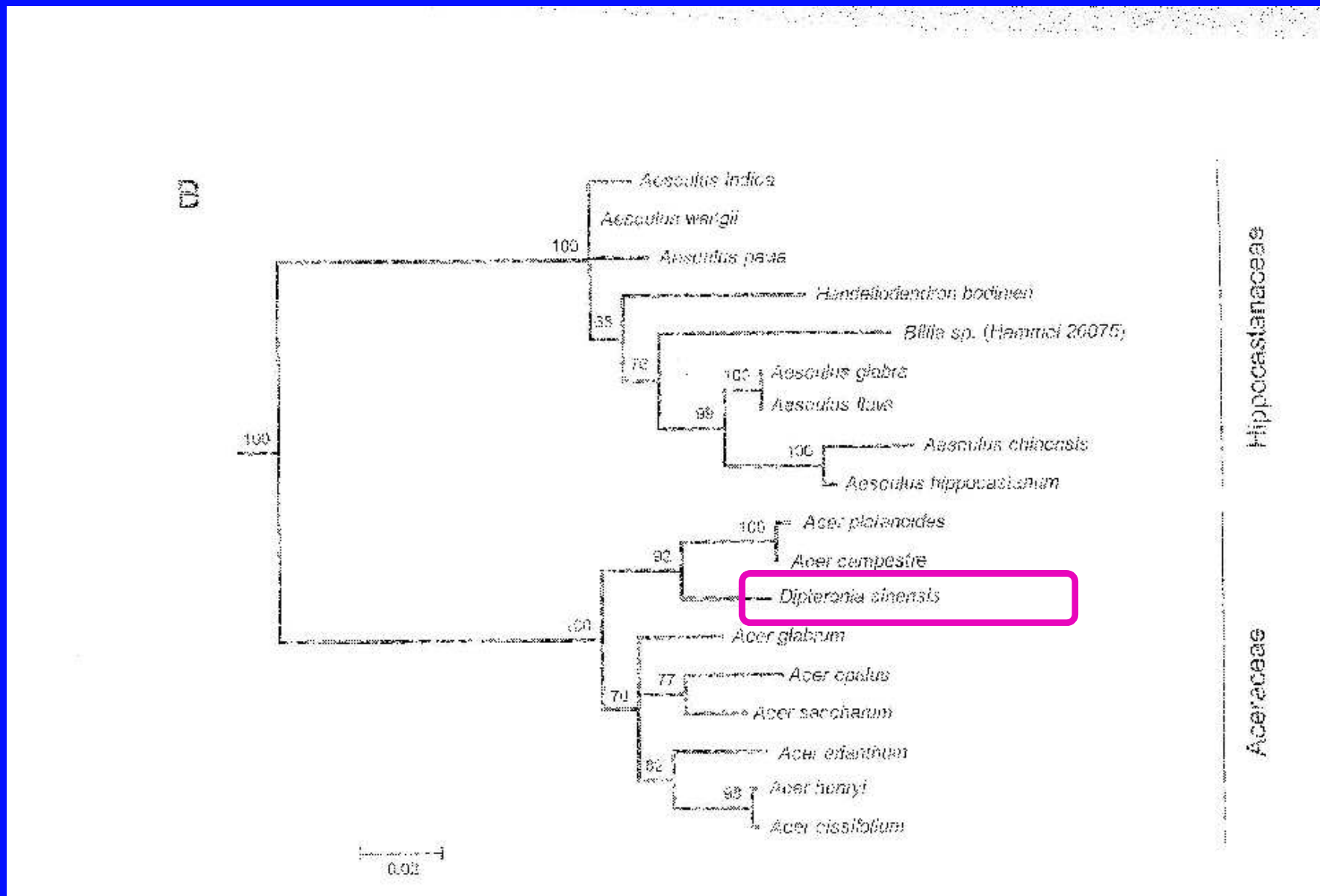
*immature fruit,
section*



mature fruit

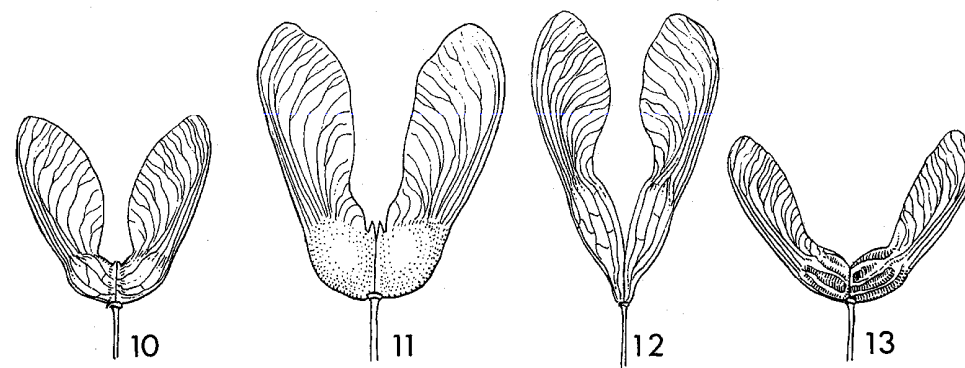
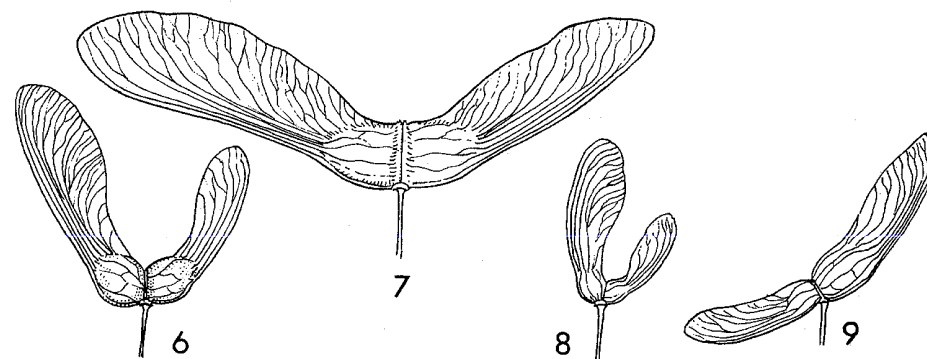
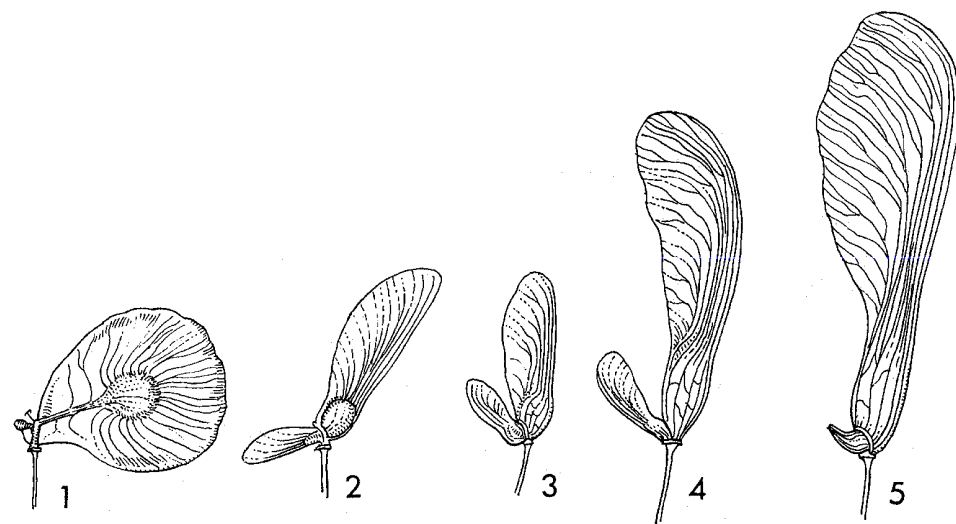


Sapindaceae sensu lato : phylogeny



(Buerki et al. 2010)

**Fruits of
Dipteronia sinensis
& *Acer***



(de Jong 1994)

Genera in Sapindaceae

Sapindus mukorossi

Soapberry tree

Dodonaea viscosa

Hop bush

Koelreuteria paniculata

Golden rain tree

Litchi sinensis

Leechee

Nephelium lappaceum

Rambutan

Xanthoceras sorbifolium

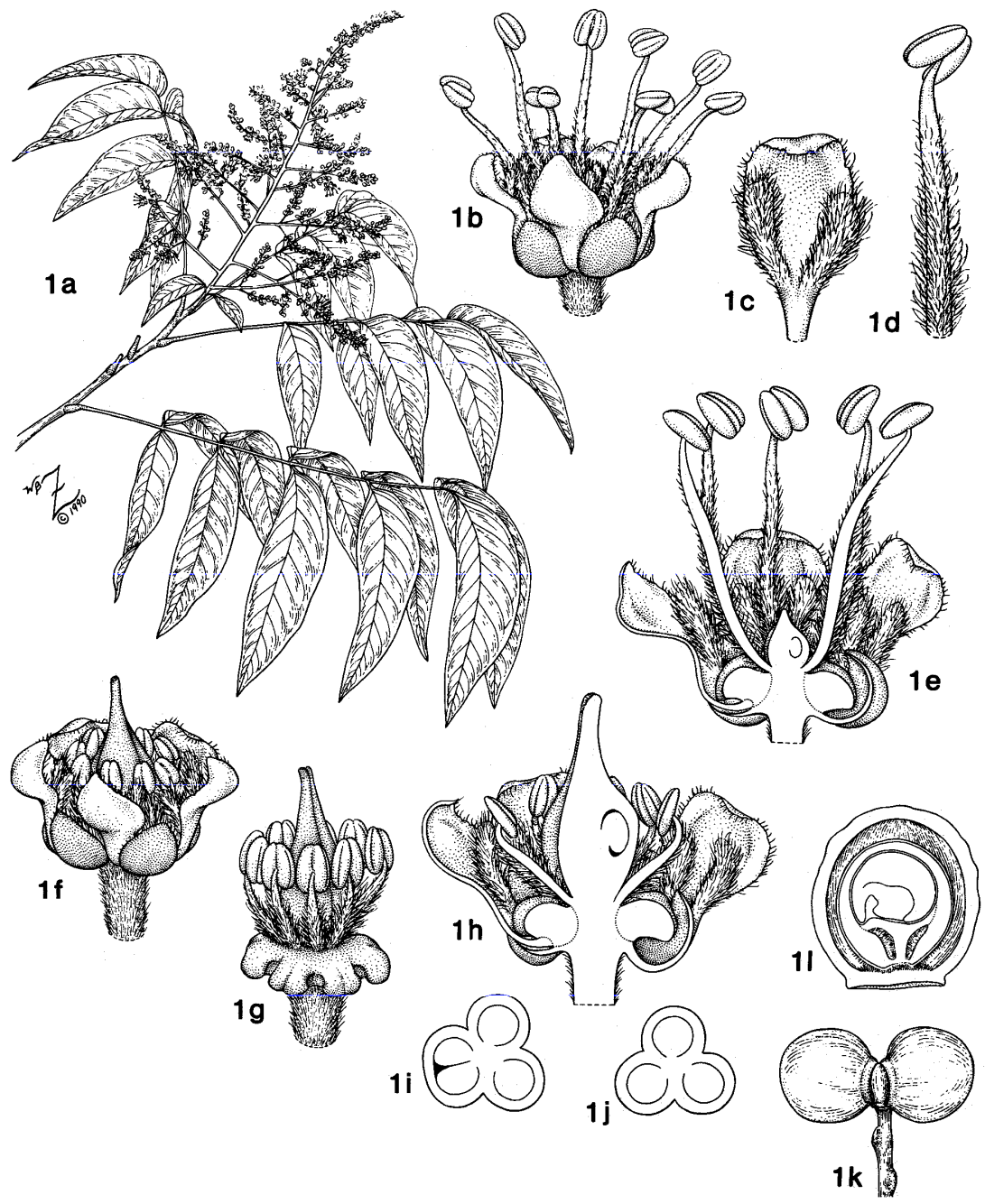
Yellow horn

Sapindus marginatus

Leaves
paripinnate
alternate

Flowers

S 5
P 5
A 8
disc
G (3)



(Zomlefer 1994)

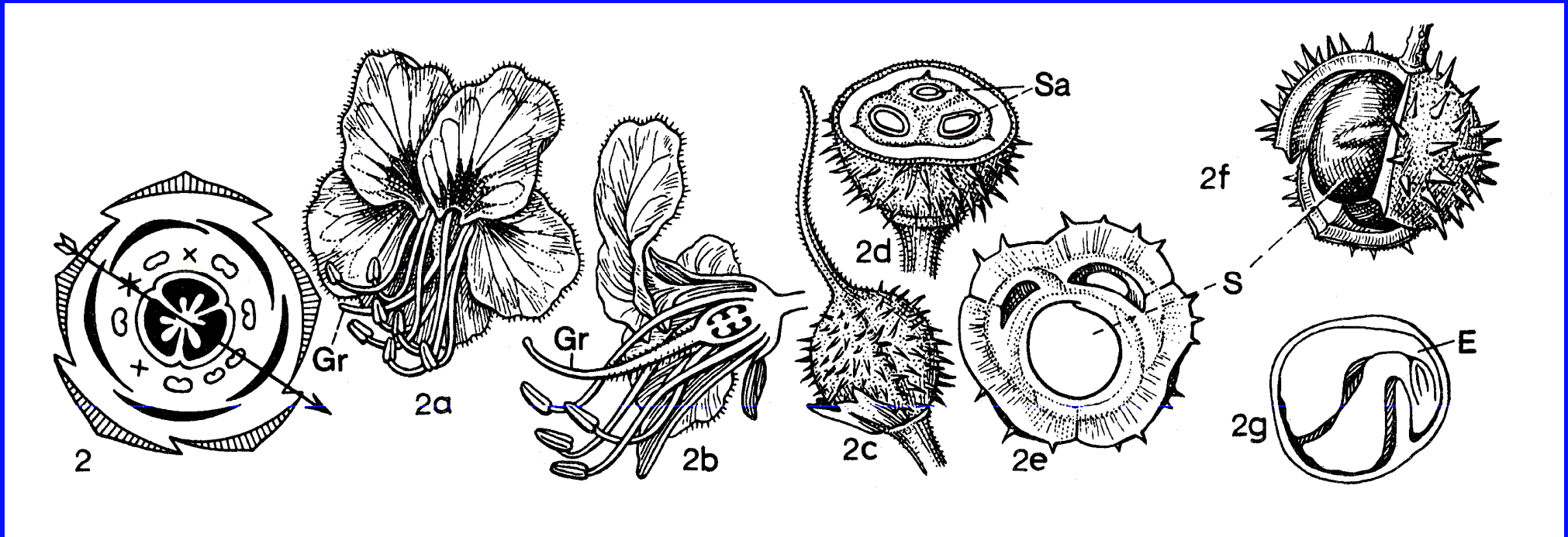
Dipteronia : leaves imparipinnate, decussate



Dipteronia sinensis

Bild: F. Oberwinkler 23.06.2005, Botanischer Garten Tübingen

Aesculus hippocastanum : flower, fruit & diagram



(Graf 1975)

zygomorphic

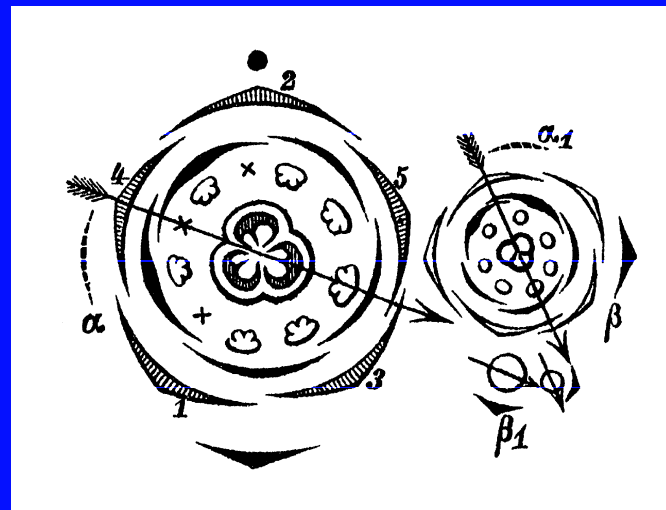
S 5

P 5

disc

A 5-8

G (3)

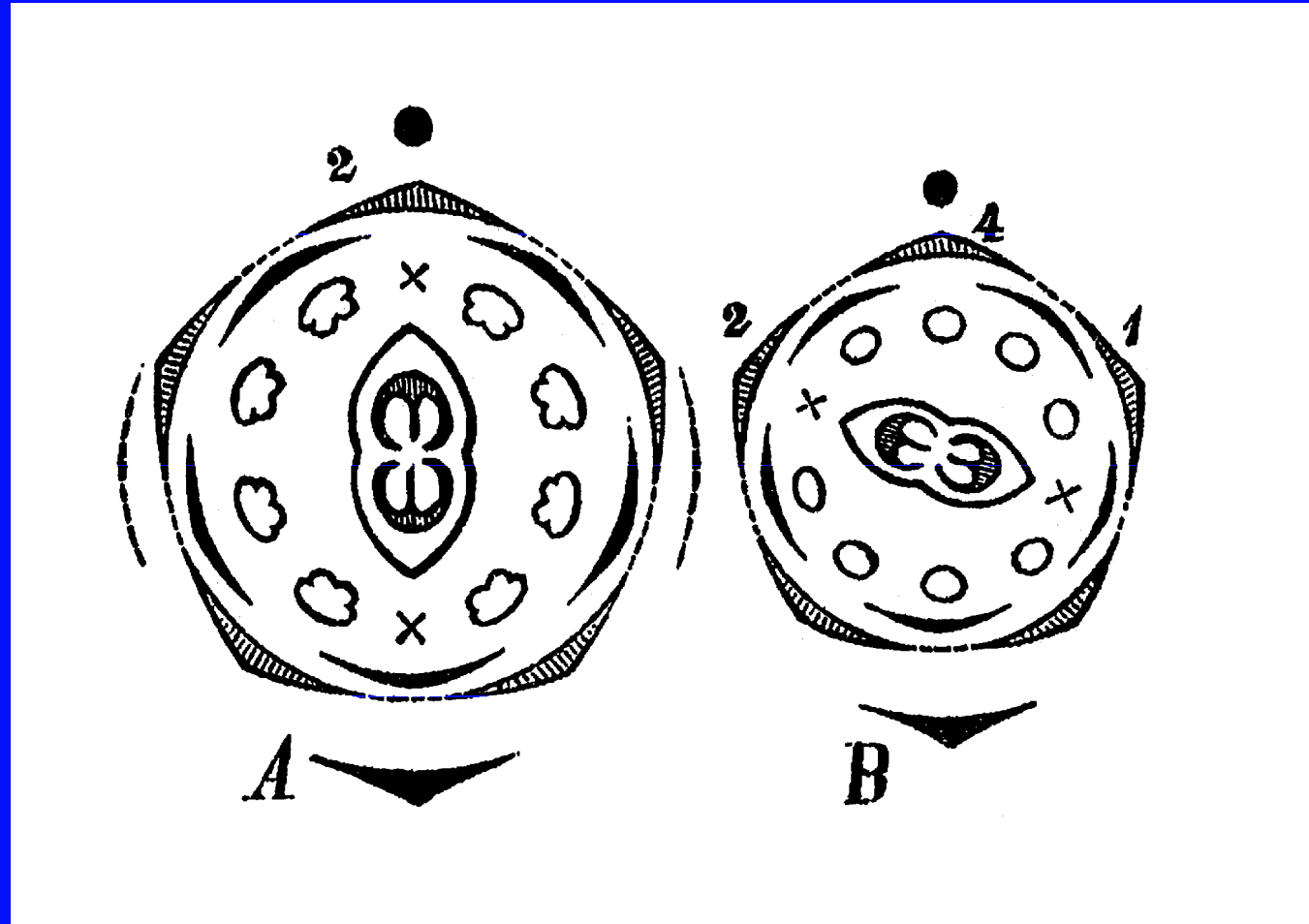


(Eichler 1875-1878)

Acer pseudoplatanus

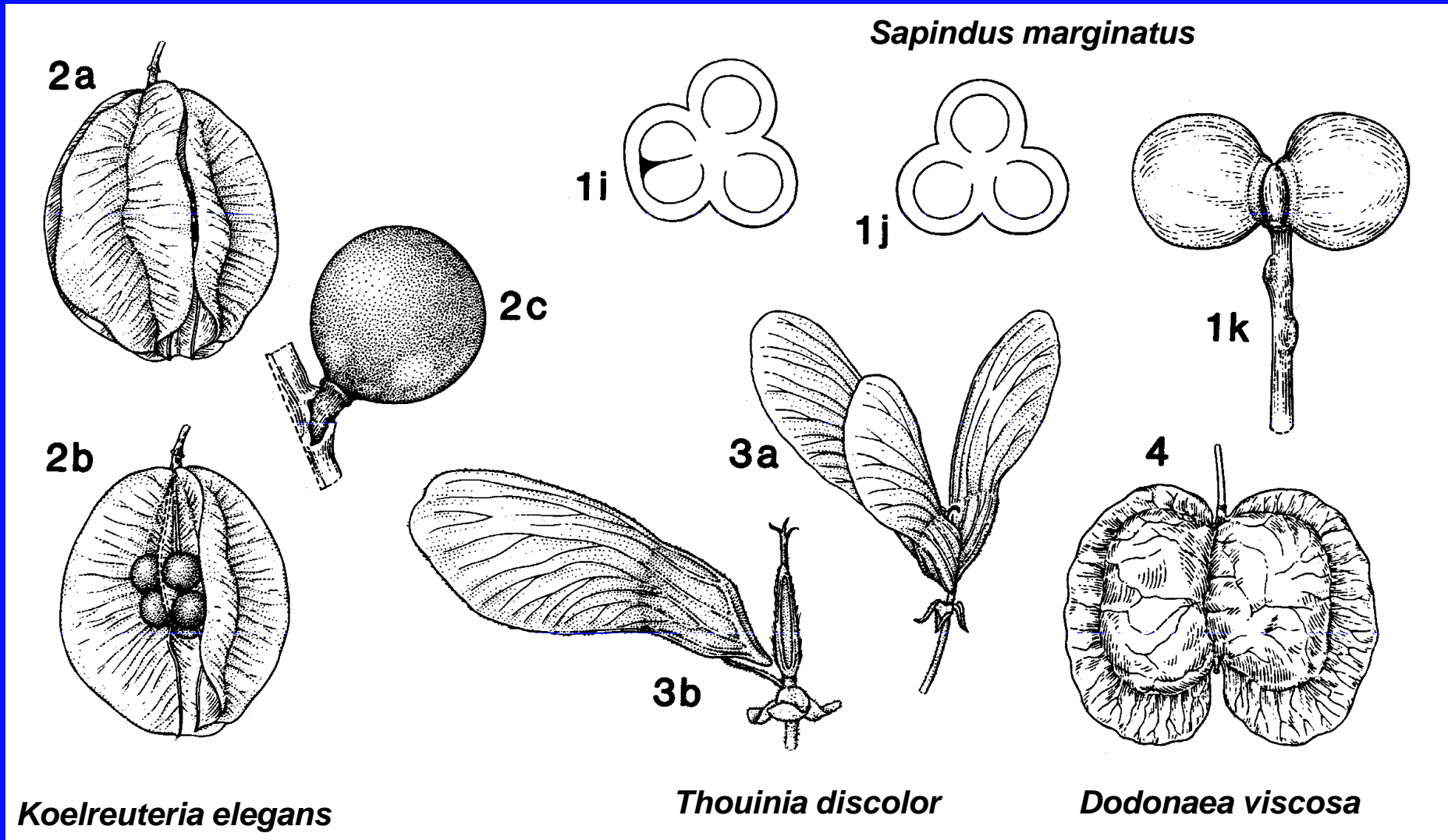
zygomorphic

S 5
P 5
disc
A 8
G (2)



(Eichler 1875-1878)

Sapindaceae fruits



(Zomlefer 1994)

Thouinia discolor



Acer fruits

samarae often in threes

Pax 1885

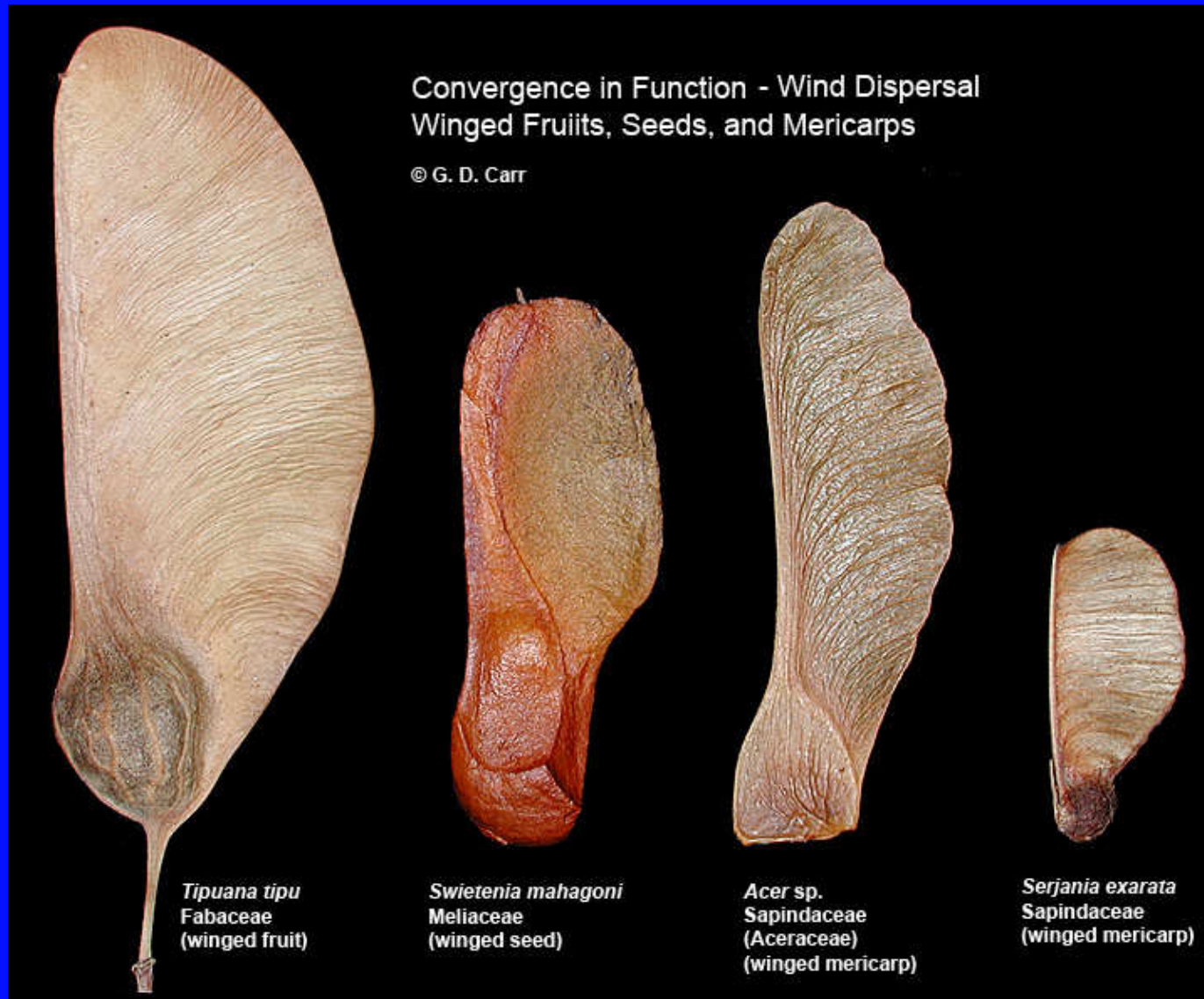
- *Acer negundo*
- *Acer platanoides*
- *Acer pseudoplatanus*
- *Acer rubrum*
- *Acer spicatum*
- *Acer tataricum*

van Gelderen 1994

- *Acer macrophyllum*

Deng, Wei & Fan 2003 - *Acer trialatum* (= *Acer buergerianum*)

Acer & convergent diaspores



Serjania goniocarpa

© W J Hayden



The take home message

Acer belongs to the order Sapindales

Acer and Aesculus are sister groups in subfamily Aceroideae

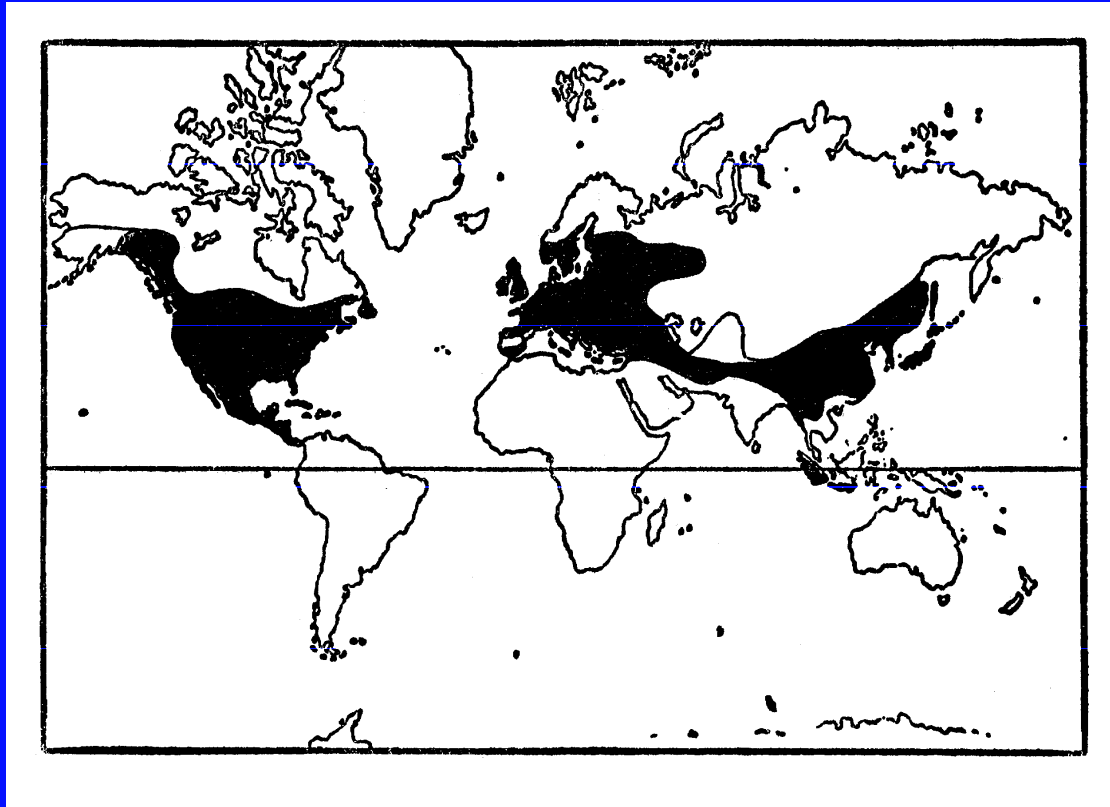
Dipteronia is nested in Acer

No big difference in vegetative structure Acer / Sapindaceae

No big difference in floral structure Acer / Sapindaceae

The typical samara of Acer is also present in Sapindaceae

Aceraceae area = eurocentrist : 2 genera, 1 nested



(Krüssmann 1976)

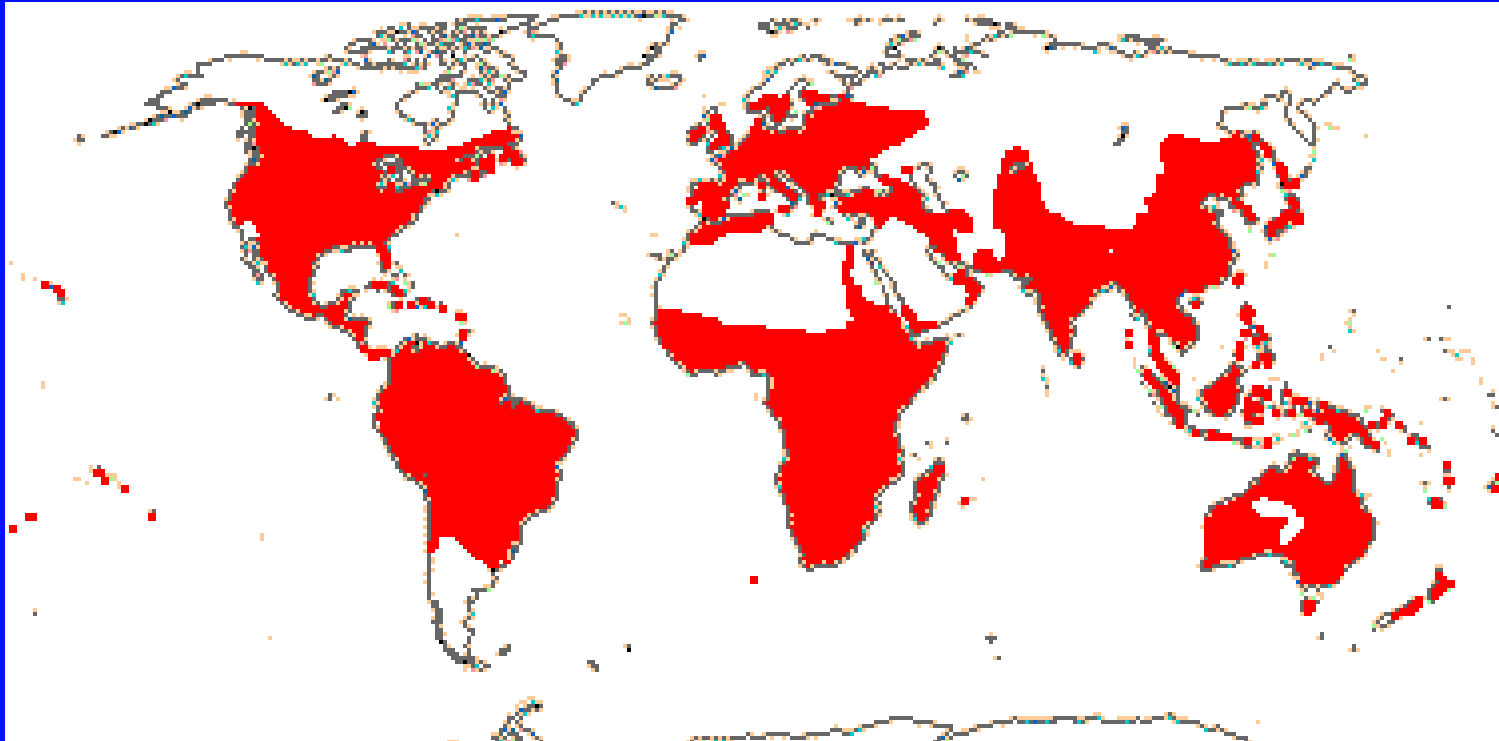
Xanthoxerataceae
1 genus

Hippocastanaceae
3 genera, 2 nested

Sapindaceae
all other 140 genera

4 “families”
= closely related !

Sapindaceae (sensu lato) area = globalist



(www.mobot.org/MOBOT/Research/APweb)

My sincere thanks to :

- Belgian Dendrology Society
- Arboretum Wespelaar
- Jan De Langhe

The Maple Society :

www.wbcbotanicalgarden.org/maplesociety

We



maples