

## The Ins and Outs of plants.... Making sense of Botanical names



**cultivar names with little relevance to the plant.**

**As members of APS, it can be assumed that we all grow at least some Australian plants. When I first joined APS in Victoria over 40 years ago, a big deal was made of knowing about the plants being grown, not only the requirements for successful growing, but also a bit about the taxonomy of plants as well. To many, Botanical names are presented as an obstacle to enjoying our gardening, rather than an important part of the reason why we enjoy plants.**

**Also, over the years it seems to me that the importance of names has waned, and commercially at least many plants now have fancy**

Taxonomists describe a plants characteristics, and its relationship to other close relatives which are placed in the same Genus or Family.

They show how, in minute detail, what character determines the classification of each and every of over 550,000 plants currently known worldwide.

Up to the 17<sup>th</sup> century, classification was ad hoc, and depended upon the interpretation of users of the plants, mostly herbalists and other medical people, and could be known by a different name everywhere the plant was grown or used.

All people involved in naming plants were driven by the need to sort and order, but none could agree on what that system should be. An example of naming, known as polynomial tag, follows:

**Plantago foliis ovato-lanceolatis pubescentibus spica cylindrica scapo tereti, tells us that this is a plantain with ovate lanceolate leaves becoming softly hairy, with cylindrical head and a round stem.** This is obviously an impossible way to describe every plant.

John Ray, English plantsman, produced "Synopsis methodica" in 1690, which laid down the rules for a modern system of nomenclature. In 1696 it was he who first used the term botany which described the subject of his life's work, from the Greek botane (= plant). Hence botany is a division of biology which treats plants with reference to their structure.

**In 1753, Swedish botanist Carl Linne (Linnaeus)** further developed a system of classifying and naming plants based on the sexual parts of plants, the flower structure of stamens and carpels, which are consistent features not relying on external factors which might alter growth. His published "**Species Plantarum**" described 6000 species of plants then known in Europe. In this work he introduced a consistent approach of describing plants using just 2 words (binomial system) firstly the Genus (surname) and then species (first or christian name). Plants which were found to be sexually close to each other were grouped in Families, a system which more than 250 years later is still valid. Books which describe plants scientifically are known as "Flora's", and list the plants according to their perceived evolutionary antiquity, the oldest plants first then progressively till the plants believed to be most recent in their evolution last. The only part of a Flora to be listed alphabetically is the index.

Until recently, botanists have used morphological, readily seen characters to determine plant names, but DNA testing has proved that some of our plants actually belong in different Genera, and even different Families. An extreme example is the lotus, previously grouped with water lilies, but DNA has proved that it belongs with the Plane tree and South Africa's Protea.

In Australia, the Genus Dryandra proved to have the same DNA structure as Banksia, and transferred to that Genus. Hakea tests genetically the same as Grevillea, and it is also likely Callistemon and Melaleuca will

merge. DNA will change the way future botanists study plants, but for we mere mortals, morphology is still the most reliable tool for identification.

Plant identification is different from plant recognition, where you guess what a plant is based on previous experience or using pictures and plant books to come to a conclusion.

Plant morphology is the study of those external features which we can recognize and differentiate. This is where plants, which have been named using characters to describe parts of the plant, can help us to determine the correct name for a plant, and hopefully retain that information for future reference.

Plants discussed at the meeting included:

**Eucalyptus**, Eu, meaning well, and kalyptos, covered referring to the operculum or cap which covers the flower bud before the stamens are released.

**Corymbia** is named for the species previously known as Eucalypts, but which have their flowers arranged outside the foliage, in corymbs, or cauliflower like heads.

**Angophora** are closely related to Eucalypts, but do not have an operculum. From Angos, a vessel and phora bearing, referring to the urn shaped fruit.

**Callistemon** refers to the beautiful stamens of the flowers, from callos, beautiful, and stemon, referring to the stamens. The word should probably be pronounced Cally-steemon

**Melaleuca** means black and white, referring to the old bark of many paper-barked species.

**Eriostemon** is from erio, woolly, and stemon, stamens, and refers to the woolly filaments of the stamens. Most have been transferred to the Genus **Philotheca**, from psilos, naked, and thece, a box, and refers to that although the filaments are covered in long hairs, they are joined at the base into a glabrous (naked) tube.

**Tetralthea** derives from tetra, four, and thece, a box, and refers to the 4 cells of the anthers.

**Isopogon** is named for the hairs which cover the fruit, which are of equal size. From Isos, equal, and pogon, a beard.

**Leucopogon** from leuco, white and pogon a beard refers to the inside of the corolla tube which is variously covered with white hairs.

**Correa reflexa** is often thought to be named for the upturned tips of the corolla tube, but reflexa correctly refers to the 2 leaflike bracts that reflex above the flower.

**Epacris** derives from epi, upon and acris a hilltop, so described as the first collection came from such a place. It is often thought that epacris referred to the sharp leaf tip, as acris can also mean sharp

**Impressa** refers to the dimples at the top of the corolla tube.

The waratah, **Telopea**, is from tele, far, and ophis, view, alluding to the flower heads which are easily seen from a distance.

**Calytrix** is from calyx, a cup, and trichos, hair, and refers to the long awn-like hair attached to the sepals

**Prostanthera** is named for the appendages on the anthers. From prosthece, an appendage or addition, and anther, anthers

**Brachycome** is from brachys, short, and come, hair, referring to the tuft of very short hairs at the apex of the fruit.

The lily **Thelionema**, is named for the many small protuberances on the staminal filaments, from thelion, a teat or nipple, and nema a thread.

**Eleocarpus** derives from elaia, olive, and carpos, fruit, and refers to the seed which is olive shaped.