Terminology for describing Clivia plants

Clivia Terminology

It is essential that we all use the same terminology especially when it comes to plant descriptions for registration or at shows when plants and plant parts are compared. Note: Afrikaans terms appear in red between brackets.

The reproductive system
The branch system bearing the flowers in Clivia is called an inflorescence (bloeiwyse). In Clivia the type of inflorescence is classified as an umbel (skerm). It consists of an elongated, leafless branch, called the scape (bloeisteel) (Fig. 1, sc.), which comes from one of the leaf axils and stretches up to the point where the flowers are borne, all more or less at the same level on an extremely condensed axis. Each flower is attached to the inflorescence axis by means of a flower stalk, called the pedicel (blomsteel) (Fig. 1, pc). Then follows the ovary (vrugebeginsel) of the flower (Fig. 1, ov), situated below the perianth (periant) (Fig.1, per). The perianth consists of three outer and three inner perianth members, called tepals (perigoonblare). Inside the perianth, are the six stamens (meeldrade), each consisting of an anther (helimknop), containing the pollen and a filament (helmdraad), which is the stalk of the anther. The stigma (stempel) and style (styl), situated at the flower centre, are attached to the ovary and together the three parts form the pistil (stamper). The ovary in Clivia has three cavities or locules (vrughokke), each containing about eight to ten ovules (saadknoppe). After pollination and fertilization, each fertilized ovule will form a seed, and the developing seeds will stimulate the ovary wall to grow and become the succulent part of the fruit (vrug) (Fig 1, fr). The Clivia fruit is called a berry (besvrug of bessie), containing one to 15 seeds depending on how many of the ovules inside the ovary have been fertilised. Some of the fertilised ovules (now called young seeds) may also abort at an early stage, thus reducing the number of seeds per berry. The membranous layer covering each seed is part of the inner layer of the fruit wall or endocarp. The fruit wall (derived from the ovary wall), consists of three layers, namely the outer, pigmented exocarp (eksokarp), the fleshy mesocarp (mesokarp) and the inner,
membranous **endocarp** (endokarp). The suffix "carp" refers to fruit.

Please note that the *Clivia* fruit is not a pod or seed pod as so often seen in the literature. Pods are the fruit of peas, beans and other leguminous plants and the *Clivia* is surely not a legume. The *Clivia* fruit is also not a seed, since the seeds are contained inside the fruit which is classified as a berry. In future, please use the names given in bold in the above paragraph.

**The Vegetative Parts**

The vegetative plant starts with the germinating seed. Clivia seeds are naked since they do not have a seed coat. They are also **recalcitrant** (onortodoks), which means that they can germinate spontaneously, even in the ripe fruit; they can only be stored for a limited period of time and will die if desiccated beyond a certain point. The seed consist of the **endosperm** (kiemwit) enclosing the **embryo** (embrio) consisting of one cotyledon (c in the figure), a **plumule** (pluimpie) and a **radicle** (kiemwortel of radikula). The whole embryo is embedded in the endosperm and the tip of the radicle can be observed as a dark spot on the one end of the mature seed. During germination the cotyledon elongates to about 0.5 to 1 cm, thus pushing the plumule and radicle out of the seed, whilst the radicle starts to elongate to become the **primary root** (primère wortel). The primary root immediately produces a collar of **root hairs** (wortelhare) behind the root tip, and continues to do so as the root grows. The primary root (r1 in the figure) normally does not form **secondary roots** (sywortels). It has a limited life span and is soon followed by **adventitious roots** (bywortels) originating from the first and later nodes (r2 in the figure).

The junction of the plumule or **apical bud** (apikale groeiknop) and the primary root forms the first **node** (knoop) of the stem where the cotyledon with its cotyledonary **sheath** (saadlobskede) (cs in the figure) is attached. The cotyledon acts as a **haustorium**, (suigorgaan) responsible for absorbing nutrients from the endosperm. The first vegetative leaf (b1 in the figure), produced by the **apical meristem** (apickale meristeem) of the plumule, consists of a **sheath** (blaarskede) with a very small **lamina** (blaarskyf). In orange and red *Clivia* the sheath of the first leaf is pigmented.

Figure 2 shows a young **seedling** (kiemplant) of *Clivia miniata* (1) as well as a longitudinal section of a slightly older seedling (2). The figure was copied from R Wettstein (1935). *Handbuch der Systematischen Botanik.*

**Hannes Robbertse**