

Physical properties of peat: a main quality for their use as growing media.

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From a strictly agronomic point of view, peats constitute almost inescapable material according to their physical properties, favourable for rooting.

The qualities of a growing medium are related to its aptitude to provide water to the root system while avoiding asphyxiation. The analysis of these properties is based on the distribution of the water (and air) volumes in the substrate porosity according to the water potential, i.e. the water retention energy in the substrate. From this follow properties:

- of material aeration, corresponding to water not or very lightly held in the coarser porosity and thus quickly released (water potentials < -1kPa)
- of water availability, corresponding to the amounts of water held in substrate porosity by a moisture tension compatible with the root extraction capacity (potentials between -1kPa and -10 kPa).

Most of the materials are used as growing media because of one or the other quality (aeration or retention, hence the mixtures), but few show both qualities. That's why peat moss is seen as a reference material in horticulture.

However we shall make a difference between moss peat and brown or black peats, stemming from different plant species and with a higher decay degree. Their structure is far less favourable, and they often show inadequate aeration, damaging of initial properties and the acquisition of a strong hydrophoby if they get dried.

Finally peats shall be differentiated by their particle size, which gives them various retention and aeration properties.