

# **Bonsai soil**

Version 1 May 2014  
Vianney Leduc

# Basic characteristic of Bonsai soil

- does not contain any soil
- extremely poor in nutrient: allows to control the growth by amount of fertilizer provided
- is required to drain well
- should have particle size of similar size (i.e. 3 – 7mm or 1/8''-1/4'')
- needs to be sifted to remove dust and control particle size
- will dry out very fast
- the pocket of air are key in the health of the root system
- will promote the development of fine feeder root and not large tap root
- fine feeder roots and controlled fertilizing will lead to finer foliage
- should not compact itself between repot
- should not break as a result of freezing
- trees in development can use larger particle size for faster growth while mature trees should use smaller particle size to slow down the growth

Example of finer foliage of Cedar obtained with bonsai soil



**Sifting soil:** windows screen first (i.e. 1/16") to remove dust and then 3/16" to remove large particles



## **Additional sifting** for Shohin and large trees

What goes through that screen is good for shohin

What is left on that screen are larger particles for trees in large pot





**Soil must be dry before sifting!**



# What is a good soil mix for me?

## Before choosing a soil mix, answer the following questions:

- What soil material is available in my area?
- How often can I water the trees?
  - do I grow moss on top of my soil?
  - are my trees under full sun exposure (i.e. more than 6 hours of sun per day)?
  - is there constant wind in my area
  - is my trees absorbing water fast?
- How often can I fertilize the trees? (i.e. higher CEC will lead to less fertilizing)
- How often do I repot trees

## Need to understand the different roles of each type of soil particle:

- some soil type are meant to add water retention capability
- some soil type are meant to decrease water retention capability
- some soil type are meant to absorb fertilizer and release them slowly afterward
- some soil type can be used to add stability (i.e. weight to a mix)
- no soil type are meant to act as food for the tree!

- There are multiple soil types that can be used for bonsai soil  
(Items in **blue** are available in Ottawa area while items in **red** are not)

- gravel
- grit
- limestone
- composted pine mulch
- peat moss
- turface
- perlite
- vermiculite
- pumice
- Akadama
- Chabasai
- Lava rock
- Haydite
- Kiriu
- Kanuma

**What is the goal with the soil recipe that you choose:** need to match your watering and fertilizing frequency to keep your tree healthy.



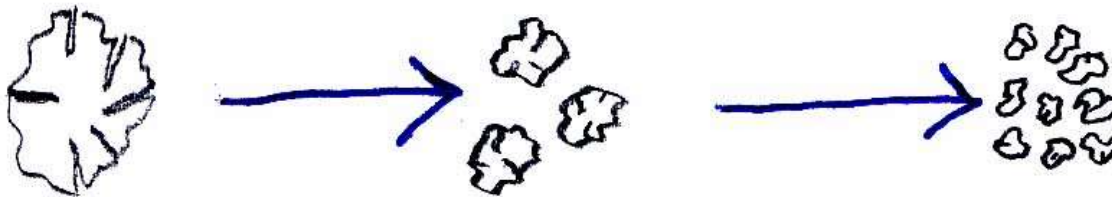
- **gravel:** decrease water retention, increase drainage ability , neutral PH, no absorbency of nutrient (CEC is 0), does not break down, add weight to soil for stability
- **grit:** similar to gravel
- **limestone:** same as above but PH is alkaline
- **Lava rock:**
  
- **composted pine mulch:** organic, good CEC, good absorption of water, PH of 6, break down and become dust after a number of years (repot every 3-4 years is not a problem)
  - current sources is wet pine mulch
  - particle size varies enormously : high percentage of loss
  - Source: Artistic landscape design on Bank, GrosBec
- **peat moss:** PH of 5, good water absorption, CEC probably OK/good (break down very fast)
  
- **Turf:** heated clay, very stable, does absorb some water and nutrient
  - Choose MVP version to get proper particle size
  - Source: Richie seeds and feed
- **Perlite:** very light weight, absorb water , no CEC capacity, unstable and break during potting
- **Vermiculite:** very light, absorb lots of water, good CEC but compress after a year only – **avoid** -
  
- **Pumice:** excellent water retention ability and good CEC
  
- **Chabasai:** retain fair amount of water and high CEC
- **Haydite:** sort of clay but does not retain enough water to be considered
- **Kiriu:** excellent for mycorrhiza development in pines
- **Kanuma:** clay like but very acidic PH 4-5, meant for azalea

- **Akadama:** clay like with average CEC

Very unique characteristics: root will grow in miniature holes. Large particle separate gradually into smaller particles size and reduce oxygen available which lead to smaller finer growth

Retain fair amount of water

3 types of Akadama available : soft, hard, fired avoid soft and heated (hard is best)



# Considerations for particular trees

## Shohin

- Small pot means that soil would dry up very fast with regular particle size
- Use smaller particles sizes and only water retaining component (i.e. no grit)

## Leafy tree

- More transpiration = better water retention in soil
- Potential soil mix :
  - 2 part organic, 1 part turface, 1 part grit
  - 1 part chabasai, 1 part turface, 1 part organic
  - 1 part chabasai, 1 part turface
  - Chabasai only

## Coniferous

- Less transpiration = average water retention in soil
- Potential soil mix :
  - 1 part organic, 1 part turface, 1 part grit
  - 1 part chabasai, 1 part turface

## **Pines**

- Soil need to dry out between watering
- Potential soil mix :
  - Larger particle size (3-5mm) 1 part organic, 1 part turface, 1 part grit
  - 1 part chabasai, 1 part turface, 1 part grit

## **Collected trees**

- Soil need excellent drainage
- Potential soil mix :
  - Larger particle size (3-5mm) 1 part organic, 1 part turface, 1 part grit
  - 1 part chabasai, 1 part turface, 1 part grit

## **Large trees (i.e. large pots)**

- Soil need excellent drainage
- Potential soil mix :
  - Larger particle size (3-5mm) 1 part organic, 1 part turface, 1 part grit
  - 1 part chabasai, 1 part turface, 1 part grit

## Refined cedars

- Need to control coarse growth with less water retaining soil
- Potential soil mix :
  - Larger particle size (3-5mm) 1 part organic, 1 part turface, 1 part grit
  - Turface only

