

Air pockets are most often taken for granted in bonsai, and has caused several undiagnosed bonsai fatalities.

This happened several times to me and it is worth mentioning and explaining as a lot of bonsai die after repotting due to this.

When an air pocket occurs as in the drawing below, the fine roots which need high humidity to survive dies thereby weakening if not killing the bonsai.

This occurs when there is a lot of organics in the soil mix or when the drain hole is not properly screened or when the person is not careful in arranging the soil while repotting.

Large organics in the soil mix would eventually decay and rot away leaving an air pocket in its place. If the mesh size of the screen is large, the soil directly on top of the hole will drain leaving a huge air pocket. Air pockets are dead zones; these are places where fine roots can not survive. If most of the fine roots are located here prior to repotting, these will all dry up and die. Bonsai pots are shallow and when this happens the air pocket could extend up to the surface creating a huge preferential pathway thereby draining all the water and starving the outer roots of water.

Written by Bonsai King

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When repotting, make sure that the mesh size of the screen at the bottom is smaller than the size of the particles at the gravel layer above the drain. This will ensure that no soil particles will be eroded down the drain. When arranging the soil during repotting put a mound beneath the center of the bonsai and force down the bonsai over it with a little twisting motion. This will ensure that there is no air space beneath it.