

Short communication

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Black carbon shuts out daylight in soil?

After seed germination, the plant has a natural strive towards the soil surface. Probably, plants make use of the light that percolate down into the soil in order to find their way upwards. In order to test this hypothesis, we added a coal-black material to the soil, namely pulverized charcoal. According to our theory, black carbon will not affect seed germination, but it will make it more difficult for plants as they strive towards the light.

Small soil samples of 25 ml myr-kalk were prepared. Myr-kalk is a soil-type which is characterized by light colour and which consists mainly of calcium carbonate.

Charcoal (ICA briquettes) was pulverized and added to half of the samples, $8\frac{1}{3}$ ml in each sample.

Three seeds of garden cress (Weibulls) were planted in each sample.

Every soil sample received 5 ml water daily. The experiment was terminated after 8 days.

Out of 36 sown seeds, 18 germinated in the samples without black carbon and 15 in the samples with black carbon. Among these, a total of 24 reached the soil surface and developed green leaves, namely 16 in the samples without black carbon and 8 in the samples with black carbon.

The variation in plant length was 9-28 mm for samples without charcoal and 18-30 mm for samples with charcoal (table 1).

The results support the theory that, although it has no effect on seed germination, black carbon makes it more difficult for plants as they strive towards the daylight.

Table 1. Effects of black carbon on growth of garden cress in myr-kalk.

Black carbon	Germination (%)	Reached surface and developed leaves (%)	Length (mm)
No	100	89	18.4±4.8
Yes	83	44	24.3±4.2