Jan van Helmont (1600s)

He weighed a pot of soil before and after he planted a willow tree in it

He only gave it water for five years

The pot weighed the same afterwards but the tree was seventy-five kilograms so he concluded the plants mass came from the water and not the soil

He was right for the most part

Joseph Priestly (1771)

He put a lit candle in a jar with a piece of a mint plant

The candle soon went out (oxygen had not been discovered yet*) but he knew it "decomposed the air" somehow

There was then no oxygen in the jar

He left the plant in the jar for a while and came back later

He took a magnifying glass and was able to light the candle through the jar, meaning somehow that there was now oxygen in the jar

He concluded then that plants changed the composition of the air

*Oxygen was discovered in 1772

John Woodward (late 1600s)

He measured the amount of water he gave to his plant

He gave his plant 76,000 grams of water

However, the plant only grew one gram

So he concluded most of the water that was given to the plant was exhaled through its leaves

Jan Ingenhousz (1779)

He started out similarly to Priestly's experiment; with a lit candle and a plant in a jar

He then put a black cloth over the jar so light could not get into the jar

When he tried to light it later, the candle would not light

He proved that plants need light to change the composition of the air

He also did another experiment where he had an aquatic plant

When there was light, the plant released little bubbles into the water

When there was no light, the plant did not produce bubbles

This further proved that plants need light to change the air

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