The Australian

Plants to sustain sealed-off scientist

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A SCIENTIST has volunteered to be sealed inside an airtight Perspex box with dozens of plants in an attempt to demonstrate the importance of photosynthesis to human survival.

In the experiment, due to be conducted at the Eden Project, Cornwall, next week, Iain Stewart will be shut inside the transparent box for 48 hours with only the oxygen-producing plants to keep him alive.

The aim is to conclude an experiment first tried by the pioneering scientist Joseph Priestley in the 18th century. However, his experiment was carried out with a mouse, not a human being.

Construction of the box, which will measure 2m by 6m by 2.5m begins today in the Rainforest Biome at the visitor attraction, near St Austell.

Scientists have calculated that the 30 cubic metre box containing around 160 plants is the smallest volume that can sustain human life.

Alistair Griffiths, the Eden Project's curator of horticulture, has spent the past three months growing the plants, which have been chosen for the large quantities of oxygen they generate. They include miscanthus a type of grass, zea mays, a variety of maize, and banana trees.

Dr Griffiths said: "Plants produce the oxygen we need to breathe. They are just there in the background, but most people don't give them a second thought. We don't know exactly how it is going to work out because it is an experiment that hasn't been done before."

The experiment will be filmed for a BBC series examining how plants have shaped the Earth. Without plants, the planet's atmosphere would be unbreathable and there would be no soil in which to grow crops.

Before Professor Stewart enters the box, the amount of oxygen in the air inside will be reduced to about half normal levels. Andrew Thompson, producer of the television series, says the "bell jar experiment" has been carefully calculated so the plants inside produce enough oxygen to support life.

He said: "There will be around 30 large plants and 130 smaller ones, although we won't know exactly how many we will be able to fit in. The air will be 'scrubbed' to reduce the oxygen. When the oxygen level drops from 21 per cent to 12 per cent we will turn on some powerful lights to start the process of photosynthesis.

"The plants will absorb carbon dioxide exhaled by Professor Stewart, so they will support each other in a circular way."

A doctor will monitor the air quality inside the box so that Professor Stewart, who is Professor of Geoscience at the University of Plymouth, does not suffer from hypoxia, or oxygen starvation.

A similar experiment conducted by Priestley in 1772 demonstrated that a mouse could survive in an airtight box full of plants but could last only a short time in a box of the same size with no plants.

The series of three, hour-long programmes is provisionally titled How Plants Made the World and is due to be broadcast in March next year.

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