

Brazil, First to Test in Space Germination of Tropical Plant

Contributed by Isaura Daniel
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Brazilian researchers may better understand the biological processes of plants after the trip that Russian spacecraft Soyuz will make to space at the end of next month. Brazil will send about nine scientific experiments for testing at the International Space Station (ISS).

One of them is by the Brazilian Agricultural Research Corporation (Embrapa) and it will be used for the observation of how the seeds of Gonçalo Alves trees, typical of the Brazilian savannah, would germinate in a low-gravity environment.

Embrapa is awaiting confirmation of the experiment being taken on the mission. It is being tested by Russian scientists at the National Institute for Space Research (Inpe) in São José dos Campos, in the interior of the southeastern Brazilian state of São Paulo.

The experiment should be taken to space by the Brazilian astronaut, Marcos Pontes, who is going to participate in the mission together with another two astronauts, a Russian and a North American. Four sets should be sent, each one containing 10 Gonçalo Alves seeds. The plant is used for the extraction of wood.

According to the joint head of the Genetics and Biotechnology Research and Development department at the Embrapa, Maurício Antônio Lopes, the objective is, after observation of how the plant germinates in micro gravity, to better understand the influence of gravity on their development on earth.

"Where there is gravity, the tendency is for roots to grow in the direction of the center of the earth, and leaves in the direction of the sun. We want to know how this will be affected," explained Lopes.

According to him the comparison of both processes will bring information about the biological development of plants on earth. The effect of gravity on the longevity of a plant and on the formation of its cells should be some of the questions answered by the experiments.

The objective, according to Lopes, is not to plant Gonçalo Alves trees in space, but to bring answers, for example, to the question of how to make a plant live longer.

This will be the first time that a tropical tree species is sent to space. Similar experiments have already been made with plants in the past, but not by Brazil nor with tropical trees.

"Few countries have access to this structure," recalled Lopes. According to him, the shipment is going to permit the Brazilian advance on the study of sophisticated biological processes.

Gonçalo, the Chosen One

Embrapa proposed five kinds of experiments, but Gonçalo Alves seeds were chosen due to the interest in conservation of the species, which has dense wood, and due to practical questions, among them the time necessary for the experiment and the low weight of the seeds.

The seeds will be fixed onto porous filter paper within a special package. The experiment will also be executed in Brazil during the same period as it will be executed on the Space Station so that both processes may be compared.

The ISS is a scientific project developed by Russia, the United States, Japan, Canada, France, Germany, Italy, Sweden, Switzerland, England, Denmark, Belgium, Norway, Holland, Spain and Brazil.

The Brazilian government is going to invest around US\$ 15 million to participate in the mission. This is the first time that a Brazilian astronaut is going to participate in a space mission. The group is going to spend two weeks in space.

School Scientists

Apart from Gonçalo Alves seeds, two scientific experiments by public schools in São José dos Campos will also be sent to the ISS. One of them includes the germination of beans and the other the separation of chlorophyll in plants.

The experiments will be executed simultaneously on the Space Station and in the city of São José dos Campos by a group of 16 children at four schools belonging to the city.

Embrapa is accompanying the process at the schools. "The intention is to generate scientific and technological interest in the youths," explained Lopes. The Russian spacecraft will leave on March 30.

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