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PEANUT (ARACHIS HYPOGAEA L.) CULTIVAR SELECTION FOR BIOREGENERATIVE LIFE SUPPORT SYSTEMS (BLSSS) – HYDROPONIC CULTIVATION

Abstract

Peanut (*Arachis hypogaea* L.) has been selected as a candidate crops because the seeds are rich in fat and protein. As part of investigations for BLSS, four peanut cultivars ('Huayu 25', 'Huayu 28', 'Huayu 31' and 'Baisha 1016') were evaluated in terms of growth, production and quality of seeds. Experiments were performed in ground experimental base of BLSS (LUNAR PALACE 1) and another controllable environment which was not enclosed. The same environmental conditions: 12 h photoperiod, light intensity 800 μmol•m-2•s-1, temperature regime 28/24 C light/dark, relative humidity 55–65 %. Fertigation was performed with a standard Hoagland solution, and pH were kept at 5.5. Results from the cultivation experiments showed good performances of the four cultivars in hydroponics. The overall analysis suggests that 'Huayu 25' could be the best candidate for the cultivation in a BLSS, coupling the small plant size and the good yield with high resource use eciency and good seed quality. Comparing with the plants grown under no enclosed and controllable environment, the influence caused by the special enclosed environment of LUNAR PALACE 1 on the growth, production and the seeds quality of four peanut cultivars was also analyzed.