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HUMAN SURVIVAL IN ADVERSE ENVIRONMENTS, USE OF MICROALGAL AND INSECT FLOURS IN FUNCTIONAL BAKERY FOR THE FIGHT AGAINST HUNGER AND LIFE SUPPORT IN SPACE TRAVEL.

Abstract

The challenge of food production in areas with few or no resources necessary for food production, such as water, minerals and nutrients, requires innovation in materials and systems aimed at achieving establishments that facilitate production in adverse conditions. Insects constitute an unlimited source of animal protein that could ensure nutritional potential. Insects have a great wealth of protein of high nutritional value and that, if used systematically, constitute a reliable source of food. These are the most abundant animals on the planet and give an idea of their ability to adapt to all the geological phenomena that the earth has suffered. In addition, they have managed to survive in ecological niches that other animals have not been able to conquer and can exceed 40 million individuals per month from a single couple. Gnotobiotic animals have proven to be invaluable tools for generating raw materials. Germ-free animals, with defined flora and omnivorous nature allow elucidating the preparation of cockroach flour from clean insects has the following characteristics: Crude protein 47Today, part of the bakery products is obtained through the use of MMC, these have application both at an industrial and artisanal level, the latter being the ones that are commercially opening a great path in household consumption in the world. One of the challenges presented by the use of microalgae in human nutrition lies in the palatability of foods or food mixtures. THE innovation in using insect flours, added to those of microalgae, allow establishing tests on breads, cookies and cereal bars based on MMC, the MMC is defined as a homogeneous mixture of flour or a mixture of flours and water, which over time It is fermented by the action of BAL, responsible for the acidic character of this mixture, and by the yeasts that are the cause of the fermentation process. Finally, advances in the development of food products based on microalgae and insects have allowed us to structure protocols for the inclusion of microalgae and insects in functional bakery products that are

better appropriated for space travelers and the contribution to food safety in places poorest on planet Earth.