

SYNTHESIS OF BIOFILM BASED ON STARCH FROM THE MATLALXÓCHITL TUBER

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This project presents the obtaining of a biofilm from starch from the tuber of the matlalzochitl plant (*Commelina coelestis* Willd), this wild plant with a blue flower has as its fruit a tuber with an elongated appearance between 5 and 7 cm in length, with a flavor and consistency similar to that of the potato, this fruit is known in the northwest area of Edo. Mexico as “juanes”. To extract the starch, first, the skin that completely covers the tuber was removed, then it was ground with distilled water and the starch was obtained through a wet process. The yield obtained from the starch extraction was 260.5 g/kilo. According to the morphological characterization by SEM, starch has oval-shaped granules, the average diameter of the ovoids is 16 μm . With respect to the elemental composition, it was found that the main elements that make up the starch of the matlalzochitl tuber are Carbon and Oxygen, whose mass percentages are 44.0% and 56.0% respectively. The amylose and amylopectin obtained were used to make flexible biofilms of chitosan, glycerin and starch; proportions of 10%, 20% and 30% of chitosan and two controls were used. The thickness, hydrophobicity, humidity percentage, ash percentage and biodegradability are determined. The most resistant and flexible films were achieved with 20% and 30% chitosan.

Keywords: Matlalxóchitl starch, Biofilm, Biodegradability

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