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UniKL Author	:	Fahmi Asyadi Md Yusof
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Abstract	:	<p>The strict environmental regulations to overcome the drawbacks of consumption and disposal of non-renewable synthetic materials have motivated this investigation. The physical, chemical, morphological, and thermal properties of Hylocereus Polyrhizus peel (HPP) powder obtained from the raw materials were examined in this study. The physical properties analyzes of Hylocereus Polyrhizus peel (HPP) powder discovered that the moisture content, density, and water holding capacity were 9.70%, 0.45 g/cm³, and 98.60%, respectively. Meanwhile, the chemical composition analysis of Hylocereus Polyrhizus peel (HPP) powder revealed that the powder was significantly high in cellulose contents (34.35%) from other bio-peel wastes. The crystallinity index of Hylocereus Polyrhizus peel (HPP) powder was 32.76%, according to further X-ray diffraction (XRD) analysis. The thermal stability of Hylocereus Polyrhizus peel (HPP) powder was examined using thermogravimetric analysis (TGA) and found thermally stable at 204°C. The morphological study via scanning electron microscopy (SEM) showed a shriveled and irregular geometry surface. Hylocereus Polyrhizus peel (HPP) powder demonstrated the peak in the range representing the major functional groups responsible for pectin's properties. Thus, the findings revealed that the Hylocereus Polyrhizus peel (HPP) powder has the potential for the development of biodegradable and renewable materials.</p>