

Quality Characteristics of Underutilized, Non-Conventional *Amorphophallus paeoniifolius* Flour and Starch †

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Abstract: *A. paeoniifolius*, commonly known as elephant foot yam, is an underutilized, highly potential tropical tuber crop that contains a good source of protein as well as starch. The purpose of this study was to isolate and evaluate the physicochemical properties of flour and starch from Elephant foot yam. Establishing the quality characteristics of shelf-stable flour and starch from *A. paeoniifolius* will facilitate various industrial applications and provide an alternative source of starch for food industries; pharmaceutical companies improve profitability to farmers and enhance the quality of *Amorphophallus* based food products. Nutritional analysis revealed that the flour is fat and cholesterol-free, high in fiber, and may be suitable for celiac disease patients. SEM studies revealed that flour and starch granules are round, elliptical, and polygonal in shape. The X-ray diffraction patterns of both flour and starch revealed A-type diffraction patterns. In addition, starch yield, swelling power, water binding capacity, syneresis, paste clarity, and resistant starch content were also evaluated using standard methods. These results indicate that the flour and starch processed from *A. paeoniifolius* will be useful in selecting this underutilized crop for future applications and various possible uses for the development of new acceptable food products and enhance its commercial potential.

Keywords: *A. paeoniifolius*; flour; starch; physicochemical properties; resistant starch; XRD.

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Conflicts of Interest

The authors declare no conflict of interest.