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Combine Interpretive Structure Modelling with GM(0,N) in the Weighting Analysis of Influence Factor of Betel Nut Taste

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Abstract

The habit of chewing betel nut is very popular among Taiwanese people. It is estimated that there are about three million people who eat betel nut in Taiwan, two million people working in betel nut-related jobs, and about five million people working in betel nut industries and betel nut businesses, is a very important role in Taiwan' economy. However, past research has been found all focused on the fields of chemical analysis, pathological analysis, image processing, mathematical analysis and management analysis. It may be impossible to accurately quantify the taste of consumers, and no research has been found in this area. Therefore, the paper uses the interpretive structure modeling and GM(0,N) method to analyze the five major factors affecting the taste: sweetness, aroma, astringency, bitterness and spiciness. Through interviewed experts who have experience in eating betel nuts and conducted actual calculations to obtain the relational degree among the five major influencing factors on taste. In addition to innovating research in this field, it not only can transform ordinal conditions into cardinal situations, but also can achieve the overall maximum economic in this field.

Keywords: Betel nut, Taste, Interpretive structure modeling, GM(0,N), Relational degree, Cardinal

1. Introduction

Areca catechu is derived from the Malay word pinang, is an evergreen tree belonging to the palm family, along with coconut. The height of trunk is from 12 to 15 meters, with a stem diameter of about 15 centimeters, and 6 to 9 leaves clustered at the top of the stem. The fruit is a drupe with a thin exocarp, a fibrous mesocarp, and a core in the endocarp. The fruit contains only one seed, the surface of which is dark brown marbled. Areca catechu is native to the Federation of Malaysia and is distributed in Sri Lanka, Thailand, India, East

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