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## Assessment of eco Holi colours variation stored in hermetic bag

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### Abstract

Colors an attractive part that creates a good vision to the human eye. Colors may have different hues, tints, shades so on. Hue refers to the origin of the colors and tints refer to any hue or mixture of colors to which white is added. Whereas, shade is a mixture of pure color to which black is added. Holi, one of the major festivals of India celebrated across the country with enthusiasm and excitement. Using natural Eco-holi colors to celebrate holi is very essential because artificial colors made up of chemicals that effects skin, eyes and hair while playing holi. Consumers have recognized some of the health hazards and environmental pollution due to harmful chemicals used in artificial colors. Hence, it is better to use Eco holi colors but the storage of Eco holi colors is a difficult task as it is chemicals free product, maintaining the moisture content during storage for a long period without preservatives requires lot of caring. From the study it was resulted that there is no much difference in color variation of Eco holi colors stored in control and hermetic bag. There is a slight (0.5) variation in colors of pink and blue stored in control and experiment bag. No difference was observed in the colors of yellow, orange, green. As there is very little difference in color variation it is suitable to store colors in hermetic bag and control bag.

**Keywords:** Eco holi colors, color variation, storage, hermetic bag, moisture content

### Introduction

Holi is all about the fun and painting the country in vibrant colors. Using Eco holi colors so that the festival is not only brightened with colors but it is also environmentally friendly. Color variation refers to the different colors within wood. It is often the reason that a wood is said to have character. Color variation is the range of colors that can occur within a species of wood. For example, Western Red Cedar may have tones of red, brown, pink or yellow. Storage of colors is one of the main problems in the market as it should be away from moisture content hence Hermetic bags were primarily designed to store agricultural commodities such as wheat, grains, maize, colors and powder forms.

By controlling moisture levels, hermetic technology is also effective in preventing the growth of mold and the adverse health effects of mold ingestion. At low oxygen levels, insect activity ceases, Carbon dioxide at high levels works as a natural flushing gas, eliminating all insects. Hermetic storage bags can not only store dry agricultural produce, but also preserve the produce without any spoilage or use of pesticides. Hence, it improves the overall grain quality and seed viability. Note that seed viability can be increased from 6 to 12 months in tropical climates. It is an air-tight and moisture-tight barrier that prevents deterioration of a commodity due to climatic changes or pest damage. Rodents and birds are also deterred when color/grain is stored in hermetic bags. It locks in the nutrients and minerals that would otherwise be lost due to exposure, contamination, insects, mold. Since no chemicals or pesticides are used, health hazards attributed to them are also avoided. Hermetic technology prevents the re-absorption of moisture, which could damage crop quality. Hermetic storage helps to achieve preserved aroma, taste, freshness, and color. The products can be stored for long periods, as long as two years, when stored at the right level of moisture content. Preventing food losses and preserving food quality increases the profits of smallholder farmers and traders, boosting the agricultural economy.

### Reviews

Darby and Caddick (2007) [6] analyzed and field evaluated the harvest bag technology in Australia. It was observed that reliable insect disinfestation capability with harvest bags was not available and insects detected at outturn pose considerable logistical problems.

Yan *et al.* (2017) [4] worked on the Hermetic storage bag and was used to protect grain against insect pests, but its utility is not limited to whole grains. They evaluated hermetically-sealed, polyethylene terephthalate (PET) bottles for preserving wheat and maize flour against red flour beetle. Hermetically-sealed bottles were effective in preventing RFB population growth and preserving maize and wheat flour. Farmers, consumers and food processors can safely store grain flour in hermetic sealed containers.

Baribusta and Baoua (2022) [5] experiment was conducted to assess the effectiveness of hermetic bags in preserving wheat flour stored by women during the wintertime when relative humidity. Moisture content and insect population significantly increased in PP bags after six months of storage, while no changes were observed in PICS bags. There was a significant negative correlation between wheat flour color and moisture content ( $r = -70.7, p < 0.001$ ) and insect population ( $r = -79.9, p < 0.001$ ). Wheat flour stored in PICS bags for 6 months retained its color and produced better bread than that stored in PP bags. Storing wheat flour in PICS bags for six months showed a return on investments (ROI) of +16.9% against -33% for the PP bag. Farm households and other wheat value chain actors can safely store wheat flour in hermetic bags for up to six months under high relative humidity conditions.

## Methodology

**Research Design:** Experimental Research Design was adopted to conduct the study.

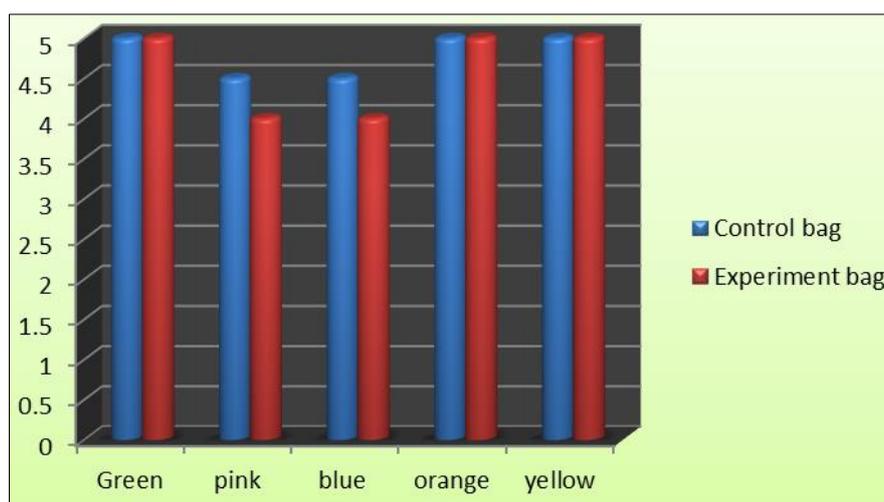
**Procedure:** The five Eco holi colors (pink, green, blue, yellow and orange) were taken for the study. Each color was stored in both control and experiment bag for 10 months period. For every 2 months visual inspection was carried out to check the color variation.

**Selection of tool:** The standard grey scale was used for assessing change in color

**Data analysis:** Values obtained for control and experiment bag was analyzed

## Results and Discussion

Assessment of change in eco holi colors stored in control and experiment bag. Color variation refers to the slight change in color either light or dark shade that occurs due to change in environmental parameters. Color variation is the range of colors that can occur within a scale. The standard (ISO 105-AO2:1993-BSEN 20105-AO2:1995- BS 1006-AO2:1990-SDC Standard Methods 5<sup>th</sup> edition AO2) grey scale was used for assessing change in color.



**Fig 1:** Assessment of change in Eco holi colors stored in control and experiment bag

The above figure.1 stated that the there is no color variation in Green, Orange and Yellow colors in both control and experimental group. The finding of the study revealed that, the green, orange and yellow colors have not lost its pigment when compared to remaining two eco holi colors (pink, blue). Pink and blue colors were very slightly differing in the color value scale in both experimental and control group. The results indicated that experimental bag is maintaining the tint of the color stored in it.

## Conclusion

From the above study it was concluded that there is no much difference in color variation of Eco holi colors stored in control and hermetic bag. There is a slight (0.5) variation in colors of pink and blue stored in control and experiment bag. No difference was observed in the colors of yellow, orange, green. As there is very little difference in color variation it is suitable to store colors in hermetic bag and control bag.

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