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EFFECT OF LIME AND POTASH ON FRUIT RIPENING OF BANANA

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Abstract:

Banana is the second most important fruit crop in India next to mango. Its year round availability, Affordability, varietal range, taste, nutritive and medicinal value makes it the favorite fruit among all classes of people. It has also good export potential. Ripening is a genetically programmed highly coordinated irreversible phenomenon which includes many biochemical changes including tissue softening, pigment changes, aroma and flavor volatile production, reduction in astringency, and many others. Hence in the present investigation efforts were made to induce ripening as well as quality of banana and it was interesting to note that combine application of lime and potash shows variation in result as per the treatment.

Key Words: Ripening, Banana, Lime, Potash etc.

Introduction:

Banana is the second most important fruit crop in India next to mango. Its year round availability, Affordability, varietal range, taste, nutritive and medicinal value makes it the favorite fruit among all classes of people. It has also good export potential. Ripening is a genetically programmed highly coordinated irreversible phenomenon which includes many biochemical changes including tissue softening, pigment changes, aroma and flavor volatile production, reduction in astringency, and many others. Banana is one of mostly consumed fruit crops in the world. Since banana is a climactic fruit, induced ripening is essential in commercial scale banana cultivation and distribution to assure good flavor, texture, and uniform peel color. Ethylene gas, acetylene gas liberated from calcium carbide, and ethephon are some of the commercial ripening agents used successfully in the trade and they have been widely studied for their effectiveness on initiating and accelerating the ripening process and their effect on fruit quality and health related issues. Lauryl alcohol was also shown as a ripening agent for bananas. Most studies suggest that there is no difference in biochemical composition and sensory quality in bananas treated with chemicals that induce ripening from naturally ripened bananas. However volatile profiles of artificially ripened bananas were shown to be considerably different from naturally ripened bananas in some studies. Hence efforts were made to detect the effect of lime and potash on ripening and quality of banana.

Material and Methods:

The ripening agents used for the study with lime, potash. The banana bunch was cut and separated into 5 groups made up six banana fingers of approximately the same size each. and the lime and potash were washed in cold water and also placed in polythene bags containing banana, while the last batch was placed in the polythene bag without any ripening agent and used as the control sample then all the bags were tied up and stored in the same room and the samples were daily monitored.

Experiment Set Up:

500mg lime +500mg potash, 1gm lime + 1gm potash, 1.5gm lime + 1.5gm potash. 2gm lime + 2gm potash. 3gm lime + 3gm potash are taken separately in a five small cotton bag and this measured chemicals paced in separate five 20c.m X 20c.m. size polythene bags and then put 6 banana fingers in that bag and sealed properly then 6 banana fingers without any chemicals placed in a same size polythene bag as a control. Observation regarding peel colour firmness and weight loss on each day observed and noted up to 6 day. (Zewter *et al.*, 2012, Singal et al., 2012

Results and Discussion:

In the present investigation the treatment given by combine application of lime and potash shows decrease in weight of banana fingers at 5th day, in the treatment 1.5gm lime +1.5gm potash only by 27gm as compared to initial weight. (702gm) where as in the same treatment softening of banana finger started from the 4th day followed by 2gm lime+2gm potash treatment and 3gm lime +3gm potash . The skin colour of banana finger changes at 4th day, in the treatment 1.5 gm lime+1.5gm potash along with little yellow spot same observation in 2gm lime+2gm potash followed by 3gm lime+3gm potash as compared to control. In control there is no change in firmness and color.

Table 1: Measurement of weight (gm) of Banana fingers up to 6 days

S.No	Treatment	Initial	Day 1st	Day 2nd	Day 3rd	Day 4th	Day 5th	Day 6th
1	500 mg lime + 500mg Potash	710	710	694	684	671	665	659
2	1gm lime +1gm potash	698	698	694	691	684	673	668
3	1.5gm lime +1.5gm potash	702	702	698	690	682	675	671

4	2gm lime +2gm potash	701	701	689	678	669	659	655
5	3gm lime +3gm potash	680	680	687	675	655	653	651
6	Control	708	708	701	685	677	670	663

Table 2: Study of Firmness

S.No	Treatment	Day 1st	Day 2nd	Day 3rd	Day 4th	Day 5th	Day 6th
1	500mg lime +500mg Potash	Hard	Hard	Hard	Semi Soft	Soft	Soft
2	1gm lime +1gm Potash	Hard	Hard	Hard	Semi soft	Soft	Soft
3	1.5gm lime +1.5gm Potash	Hard	Hard	Semi soft	Soft	Soft	Soft
4	2gm lime +2gm Potash	Hard	Hard	Semi soft	Soft	Soft	Soft
5	3gm lime +3gm Potash	Hard	Hard	Soft	Soft	Soft	Soft
6	Control	Hard	Hard	Hard	Hard	Hard	Hard

Table 3: Study of change in skin colour

S.No	Treatment	Day 1st	Day 2nd	Day 3rd	Day 4th	Day 5th	Day 6th
1	500mg lime +500mg potash	Green	Green	Green	Green	Green and normal yellow trace	Green but with some traces of yellow
2	1gm lime +1gm potash	Green	Green	Green	Green	Green and yellow soft	More green than yellow
3	1.5gm lime +1.5gm potash	Green	Green	Green	Green and lightly yellow spot	Green and lightly yellow spot	More yellow than green
4	2gm lime +2gm potash	Green	Green	Green	Green and lightly yellow spot	Green and lightly yellow spot	Yellow but with traces of green
5	3gm lime +3gm potash	Green	Green	Green and lightly yellow spot	Green and lightly yellow spot	Yellowish	Yellow with black spot
6	Control	Green	Green	Green	Green	Green	Green

500mg lime +500mg potash

Control

1gm Lime + 1gm Potash

1.5gm lime +1.5gm potash

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