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# KETO ACIDS PRESENT IN PIPER BETLE (L)

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Leaves of ten varieties of **Piper Betle** (L) were taken as per the experimental materials. The keto-acids present in 3 months old light and dark grown leaves while extracted and characterised by standard procedures. The keto-acids found were pyruvic acid, α-Keto glutaric acid, ascorbic acid and β-keto butyric acid in dark-grown and levulinic acid, pyruvic acid phenylpyruvic acid, α-Keto glutaric acid and glyoxalic acid were found in light grown leaves.

## INTRODUCTION

Although the importance of **Piper betle** (L) has been felt by many investigators long ago, not much attention has been given towards the isolation of keto-acids present therein, Keto-acids are considered to be the most important acids which occupy the key position to explain the metabolic pathway of many organic compounds in living tissues. We know light plays an important role to perform the greater role of integration of different compounds in the plaint tissues. In the present investigation, attempts have been made for the isolation of keto-acids present in ten varieties of 90 days old completely light and dark grown leaves of pan.

## MATERIALS AND METHODS

Ten varieties of Pan were taken as per the experimental material. They were allowed to grow in light and in dark in pots. The 90 days old leaves were taken as the starting materials. The extractions of keto-acids from Pan leaves were done as per the method of Towers (1954) with slight modifications, using 2, 4 dinitrophenyl hydrazine. The 2,4 dinitro-phenyl hydrazone of keto-acids so obtained were subjected to X-ray diffraction analysis and paper chromatography.

The paper chromatograph of 2, 4 dinitro-phenyl hydrazone derivatives were done vide Widson, *et al.* (1965). Method taking amyl alcohol, ethanol and water (9:1:4) as solvent. The $R_f$ values so obtained were compared with that of the authentic samples.

The X-ray diffraction analysis were done with a norel company X-ray diffractometer with Geiger-Muller counter and stripped chart recorder. Monochromatised Cu, $K_\alpha$ radiation of 35 kV was used. The scanning speed was maintained at 10/mm 20. The results were compared with the reference (powder diffraction file). Simultaneously, authentic samples were taken for X-ray diffraction for proper confirmation.

## RESULTS AND DISCUSSION

The keto-acids characterised by paper chromatography on the basis of their $R_f$-values by X-ray diffraction were the same and are given in Tables 1 and 2.

**Table 1 : (Light Grown)**

| Sl. No. | Name of Pan | Ascorbic acid | Pyruvic acid | α-Keto glutaria acid | Levullnic acid | Phenyl pyruvic acid | Glyoxalic acid | β-Keto butyric acid |
|---|---|---|---|---|---|---|---|---|
| 1. | Ambadi | + | ++ | ++ | + | ++ | + | – |
| 2 | Bhubna | + | ++ | ++ | + | + | + | – |
| 3. | Chennur | + | – | + | + | ++ | – | + |
| 4. | Desavani | + | – | ++ | – | + | + | + |
| 5. | Gangeri | + | + | ++ | + | – | + | – |
| 6. | Kaker | + | – | + | + | + | – | – |
| 7. | Kali | + | ++ | – | – | + | + | + |
| 8. | Kammar | + | ++ | + | + | + | + | – |
| 9. | Kanigale | + | + | ++ | + | – | – | + |
| 10. | Kaniballi | + | ++ | + | + | + | + | – |

++Present in planty; +Present intrace; -absent.

**Table 2 : (Dark Grown)**

| Sl. No. | Name of Pan | Ascorbic acid | Pyruvic acid | α-Keto glutaria acid | Levullnic acid | Phenyl pyruvic acid | Glyoxalic acid | β-Keto butyric acid |
|---|---|---|---|---|---|---|---|---|
| 1. | Ambadi | + | + | + | – | – | – | – |
| 2 | Bhubna | + | + | + | – | – | – | – |
| 3. | Chennur | + | + | + | – | – | – | – |
| 4. | Desavani | + | + | ++ | – | – | – | – |
| 5. | Gangeri | + | – | + | – | – | – | – |
| 6. | Kaker | + | + | – | – | – | – | – |
| 7. | Kali | + | + | ++ | – | – | – | – |
| 8. | Kammar | + | – | + | – | – | – | – |
| 9. | Kanigale | + | + | + | – | – | – | – |
| 10. | Kaniballi | + | + | + | – | – | – | – |

The keto-acids, pyruvic acid, α-keto-glutanic acid. Ascorbic acid, β-keto-butyric acid were found in dark grown leaves where as keto acids namely levulinic acid, pyruvic acid phenyl-pyruvic acid, α-keto-glutaric acid, gloxalic acid, β-keto butryric acid were confirmed in light grown leaves of different varieties. The keto-acids which plays an importance role to explain major metabolic path of different organic compounds were more in number in light than in dark grown leaves. Hence, it may be suggested that the light plays an important role to perform the greater role of integration of different compounds in the plant tissues.

# References

1. Towers, G.H.N., Thompson, J.F. and F.C. Steward, *J. Chemical Soc.,* **76,** 2392 (1954).
2. Widson, M. and G.H.N.Towers, *Canadian J. Biochem. Physio*., **34**, 502 (1956).

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