Evaluation of biochemical attributes in water chestnut (*Trapa natans* var. *bispinosa* Roxb.) collected from Lucknow region

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**ABSTRACT**: Water chestnut is an aquatic annual herb and its fresh valuable fruit crops. The huge variation in quality of water chestnut not well documented. In the present study, the biochemical property of water chestnut cultivars collected from different sites was comparatively evaluated. The results showed significant variation in TSS, pH, reducing sugar (%), non-reducing sugar (%), total sugar (%), acidity (%), and sugar/acid ratio among the various cultivars collected from the different areas. The maximum acidity (0.10%), vitamin-C (9.46 mg/100 g), reducing sugars (2.06%), non-reducing sugars (2.73%), total sugars (4.80%), sugar/acid ratio (48.00) was recorded in T$_1$, while the maximum pH (5.83) and vitamin A was recorded in T$_5$. However, the maximum TSS (7.16 Brix) was found in T$_4$.

**KEY WORDS**: Biochemical attribute, Water chestnut, Aquatic annual herb

times was analyzed for biochemical attributes. Total soluble solids were determined in terms of °Brix with the help of hand refractometer. Titerable acidity per cent was calculated by dividing titrated value into normality of alkali into volume made up into equivalent weight of an acid with its weight of sample taken into hundred. However, the quality parameters such as ascorbic acid, reducing sugars, non-reducing sugars and total sugars, vitamin A were analysed by using standard methods suggested by Ranganna (1991). The experimental data was analyzed in completely randomized design by Chandel (2001).

RESEARCH FINDINGS AND DISCUSSION

All the biochemical parameters of the plant which were studied viz., pH, acidity, vitamin-C, TSS, reducing sugars, non reducing sugars, total sugars, vitamin-A, Sugar/Acid ratio of trapa fruits were observed to be significantly affected by all the selected sites. The highest pH (5.83) was observed in T5 followed by in T4 (5.70), while the lowest pH (5.50) was observed in T2. The maximum acidity was (0.100%) recorded in T1 followed by in T2 (0.096%) and similar value also found in T3 whereas the minimum acidity (0.094%) was recorded in T4, similar was recorded in T5. The maximum vitamin-C (9.46 mg/100g) was also found in the T1 followed by in T4 (8.99 mg/100g), T5 (8.75 mg/100g) while the minimum vitamin C (8.28 mg/100g) was found in the T2. The maximum TSS (7.16 °Brix) was recorded in T4 followed by in the T1 (7.00 °Brix), T2 (6.50 °Brix) and the minimum TSS (6.36 °Brix) was recorded in T3. The results are in close conformity with the findings of (Kapur et al., 1980, Dwevedi et al., 2006; Babu et al., 2011).

The highest reducing sugars (2.06 %) were found in T1 followed by in T5 (1.93%) while the lowest reducing sugars (1.60 %) was found in T2. The maximum non-reducing sugars (2.73%) were found in T4 followed by in T1 (2.53%), T3 (2.20 %), while the minimum non-reducing sugars (2.13 %) was found in the T5. The maximum total sugars (4.80 %) was recorded in T1 followed by in T5 (4.46 %), T3 (4.06 %) while the minimum total sugars (3.92 %) was recorded in T4. The maximum vitamin A (18.73 I.U./100mg) was recorded in T5 followed by in T1 (18.63 I.U./100mg), T2 (18.46 I.U./100mg) and the minimum vitamin A (17.53 I.U./100mg) was recorded in the T3. Although, the maximum sugar/acid ratio (48.00) was found in T5 followed by in T1 (47.20), T3 (42.93) while the minimum sugar/acid ratio (40.06) was found in the T3. The results are in agreement with the findings of Kapur et al. (1980) and Babu et al. (2011).

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