

water in 8:2 ratios. The β -carotene contents were calculated by a calibration curve from the known amount of β -carotene and expressed as parts per million (ppm). The standard solution of β -carotene (Sigma) was prepared in WSB with a concentration of $5\mu\text{g/mL}$. A calibration curve was made by known amounts of pure β -carotene from $0.25\mu\text{g/mL}$ to $1.5\mu\text{g/mL}$. The results were expressed as $\mu\text{g/g}$.

1.2.4 DETERMINATION OF ANTIOXIDANT ACTIVITY

The DPPH (2, 2-diphenyl-1-picrylhydrazyl) method was used for estimating free radical scavenging activity of the methanol extracts of samples. Two milliliters of methanol extract (4 mg/mL) were taken in a test tube and final volume of 3 mL was made with methanol. The absorbance of the mixture was measured after 40 min at 517 nm against methanol as a blank. Ascorbic acid was used as a standard. The free radical scavenging activities (%) of tested samples were evaluated by comparing with a control (2 mL DPPH and 1 mL of methanol). Each sample was then measured in triplicate and averaged. The free radical scavenging activity (FRSA) was calculated using the formula:

$$\text{FRSA} = \left[(\text{Ac} - \text{At}) / \text{Ac} - \text{As} \right] \times 100,$$

where

Ac = Absorbance of the control,

As = Absorbance of the standard and

At = Absorbance of the test.

1.2.5 CHLOROPHYLL ESTIMATION

One gram of leaf samples were ground with the addition of 20 mL of 80% acetone. After centrifuging at 5000 rpm for 5 min , the supernatant was transferred to a 100-mL volumetric flask. The residue was further ground with 20 mL of 80% acetone, centrifuged and the supernatant was transferred to the same volumetric flask. This process was repeated until the residue become colorless. Volume was made up to 100 mL with 80% alcohol. Chlorophyll was extracted in 80% acetone and the absorption was read at 663 nm and 645 nm by a spectrophotometer. Using the absorption coefficients, the amount of chlorophyll was calculated.

1.2.6 ESTIMATION OF IODINE AND ANTIOXIDANT ACTIVITY IN CABBAGE HYBRIDS

Owing to the significance of iodine ($\mu\text{g}/100\text{ g}$) in the human diet, the estimation of iodine was carried by the arsenic-cerium redox method (Brown and Hutchinson 1949). Seventeen hybrids viz. Cabbage Hy 1, Cabbage Hy 2, Cabbage Hy 3, Cabbage Hy 4, Cabbage Hy 5, Cabbage Hy 6, Quisto, Kranti, DARL-801, DARL-802, CH 21, Green Flash, SIR, CH 2200, Speed 50, Krishna and Varun were collected from different public and private seed companies and were grown in an open field in randomized block design in three replications. The marketable heads were selected for