

**TABLE 13.2**  
**Phytonutrients Present in the *M. calabura* Fruit Extract**

S. No	Parameters	mg/100 g of Fresh Weight
1	Total phenols	1491
2	Total flavonoids	300
3	Total anthocyanins	0.3
4	Total ascorbic acid	9861

and essential amino acids. The protein content of the fruit varies, depending on the seasonal influence, age and ripening. The presence of vital phyto nutrients in these fruits paves the way for their utilization as protein supplements to tackle the problem of protein deficiency-associated problems, especially in rural areas.

Anthocyanins are the most common red-purple fruit pigments, and have been extensively studied for their antioxidant anthocyanin contents. Fruits that are not red-purple may contain other potent polyphenolic antioxidants (Einbond et al. 2004). In our study, the ripened fruit of *M. calabura* is a dark red-colored fruit, which may confirm the presence of anthocyanin pigment. Thus, these phytochemicals are also present in *M. calabura* fruits, owing to drug discovery.

Vitamin C is an essential dietary nutrient required as a cofactor for many enzymes, and humans are among the few animals that lack the ability to synthesize this compound from glucose. Hence, it is essential to uptake fruits or vegetables rich in vitamin C. Moreover, epidemiological studies show that individuals with high intakes of vitamin C have a lower risk of numerous chronic diseases, including heart disease, cancer, various eye diseases and neurodegenerative conditions. Vitamin C was found to account for 65–100% of the antioxidant potential of beverages derived from citrus. Although, phenolics appear to be contributors of the antioxidant potential of non-citrus juices. Though *M. calabura* is a non-citrus fruit, it is rich in vitamin C and also a contributor of phenolics.

Section 13.4 presents an overall generalized outline of phytochemistry of *M. calabura*. The enormous therapeutic value of these fruits highlights the need for an in-depth discussion regarding the core phytochemical compounds present in *M. calabura*, as outlined in the preceding sections.

### 13.5 HIGH-PERFORMANCE THIN-LAYER CHROMATOGRAPHY PROFILING OF *M. CALABURA* FRUITS

Phenolic compounds are further classified into polyphenolics present in excess in *M. calabura* fruits. Many different known and unknown polyphenols are present in *M. calabura* fruits, which were investigated by high-performance thin-layer chromatography (HPTLC), a chromatographic technique, the results of which are presented in Table 13.3.