

TABLE 17.1
Extract Yield, Total Phenolic, Flavonoid, Vitamin C and E Contents of *B. retusa*

S. No	Solvents	Extract Yield (g/100 g sample)	Total			
			Phenolics (g GAE/100 g extract)	Flavonoids (g RE/100 g extract)	Vitamin C (g AAE/100 g extract)	Vitamin E (g TE/100 g extract)
1	Petroleum ether	2.10	1.16 ± 0.14 ^c	2.67 ± 1.36 ^c	0.20 ± 0.06 ^c	1.45 ± 0.71 ^c
2	Chloroform	3.00	1.10 ± 0.28 ^c	8.39 ± 1.80 ^c	1.67 ± 0.66 ^b	5.15 ± 2.03 ^c
3	Ethyl acetate	3.90	35.78 ± 1.91 ^b	208.94 ± 5.03 ^a	2.55 ± 0.20 ^b	15.15 ± 0.71 ^b
4	Methanol	19.20	103.86 ± 0.73 ^a	37.00 ± 9.26 ^b	4.32 ± 1.10 ^a	73.07 ± 4.38 ^a

Note: Values are means of three independent analyses ± standard deviation (n = 3). Mean values followed by different superscript letters ^a > ^b > ^c indicate significant statistical differences at $p < 0.05$.
Abbreviations: AAE = Ascorbic acid equivalents; GAE = Gallic acid equivalents; RE = Rutin equivalents; TE = α -tocopherol equivalents.

17.3.2 TOTAL PHENOLIC AND FLAVONOID CONTENTS

The amount of total phenolics and flavonoids in the stem extracts was analysed and shown in Table 17.1. The total phenolic contents were found to be higher in methanol extract of stems (103.86 g GAE/100 g). Moreover, ethyl acetate extract was also found to have higher flavonoid content (208.94 g RE/100 g extract) when compared to the other extracts. Hence, ethyl acetate and methanol extract was found to be more efficient solvent for extracting the phenolics and flavonoids from stems (Murugan et al. 2016). Polyphenols are the major plant compounds with antioxidant activity. This activity is believed to be mainly due to their redox properties, which can play an important role in adsorbing and neutralizing free radicals, quenching singlet and triplet oxygen or decomposing peroxides (Osawa 1994).

17.3.3 VITAMIN C AND E CONTENTS

Quantitative assay results revealed the maximum amount of vitamin C was found in the *B. retusa* stem methanol extract (4.32 g AAE/100 g extract) whereas it was lower in the petroleum ether extract (0.20 g AAE/100 g extract). Vitamin E content was highest in the stem methanol extract (73.07 g TE/100 g extract). Similarly, *B. retusa* leaves and fruit also showed good vitamin contents and they may act as antioxidants (Murugan et al. 2016). From the results, the methanol solvent was the best solvent extraction for obtaining vitamin C and E contents.