15.2.5.1 Fungal Culture

Fusarium graminarium (MTCC 2089) was inoculated into 50 mL fungal broth taken in a conical flask. The different plant extracts, namely ethyl acetate, acetone and methanol (10 mg and 25 mg) were added to the broth before inoculation and all the flasks were correctly labeled. Standard antioxidant compounds like quercetin, rutin and BHT were also added in separate flasks. One flask was kept as the control sample without any compound added to it. All the flasks were kept in incubator (40°C) for 15 d.

15.2.5.2 Extraction of Toxin

The determination of zearalenone (ZEA) was carried out as described by Schollenberger et al. (2006). Briefly, extraction was done by mixture of acetonitrile and water followed by liquid/liquid extraction with hexane.

15.2.6 Quantification of Zearalenone Using HPLC

The quantification of ZEA was performed by external standardization. The standard acquired from Sigma Chemicals Co. was diluted in solution. The sample was injected into a LC-6AD (Shimadzhu LC) chromatography system (UFLC) equipped with LC pump system, UV/VIS Detector (SPD-20 A), Luna 5 μ C18 (2)-100A column (250 mm × 4.60 mm) and controlled by LC Solution version 2.1 (Spinco, United States). The wavelengths set in the fluorescence detector were 270 nm and 455 nm, respectively, for excitation and emission of ZEA. The mobile phase was water (A): methanol (B) in gradient mode. The gradient began at 88% A and 12% B during 8 min. From 9–18 min, B concentration raised to 100%. At 19 min, the gradient returned to 88% A and 12% B and remained in this condition until 27 min. The flow rate was 1 mL/min and the injection volume was 20 μL. The accuracy of the method was expressed as the percentage of recovery and evaluated by the coefficient of variation of three repetitions. The quantification was determined by the dilution of standard and fortified samples that generated a detector signal twice in the retention time of the toxin.

15.3 RESULTS AND DISCUSSION

15.3.1 Antifungal Activity

The antifungal activity of the three extracts of *P. mollis* was carried out using the well diffusion method. A different concentration of the extracts ranging from 10–200 μg was checked. It was inferred from the study that antifungal properties were shown by the extracts at a concentration of 200 μg against the tested organism. The results are presented in Figure 15.1. The zone of inhibition was measured and tabulated (Table 15.1). *Fusarium graminearum* showed a good response to the ethyl acetate extract (inhibition zone of 6 mm). Here, Amphotericin b (10 μg) served as the standard drug.

The natural products extracted from aromatic and medicinal plants received particular attention as potential natural agents for food preservation and antimicrobials.