Triterpene	-	-
Alkaloid	+	+
Tannin	+	+
Starch	-	-
Protein	+	+
Phenolic compound	+	+

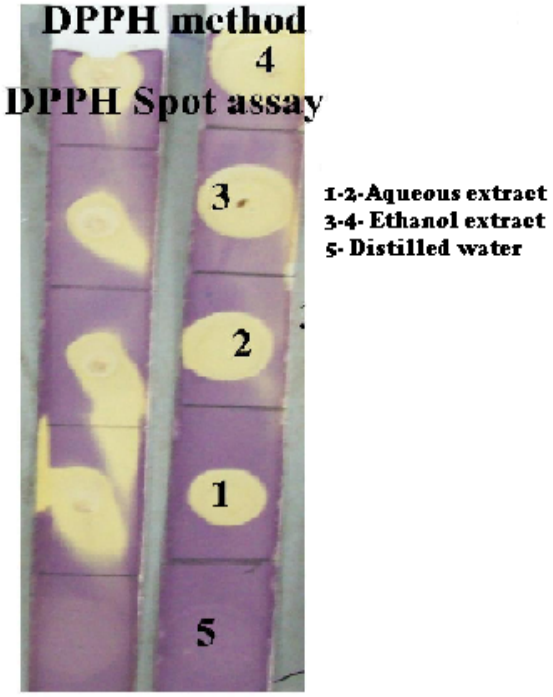
In order to quantify important phenolic compounds available in the extracts, standard spectrophotometric methods were used and the results indicated that ethanolic extract of *Achyranthes aspera* yield 2.3% flavonoids, 1.7% tannins and 7.2% phenols and the aqueous extract showed lower concentrations of these phytochemicals with 1.1% flavanoids, 0.7% tannins and 4.62% phenols (Table 4).

Table 4: Quantitative Phytochemical screening

Phytoconstituents	% Yield (Ethanol extract)	% Yield (Aqueous extract)
Flavonoids	2.3	1.1
Tannins	1.7	0.7
Phenols	7.2	4.62

In DPPH assay, the DPPH solution is decolorized when the odd electron becomes paired off in the presence of free radical scavenger. The color becomes light yellow from deep violet. DPPH TLC assay clearly has indicated the radical scavenging nature of the extracts (Figure: 1).

Corresponding increase in absorbance is noted in extracts as well as standard when the concentrations of extracts and standard were increased. The percentage of DPPH radical scavenging activity of aqueous and ethanolic extracts of *Achyranthes aspera* (at 100µg/ml) and standard (at 50µg/ml) were 34.37%, 72.06% and 52.67% respectively.



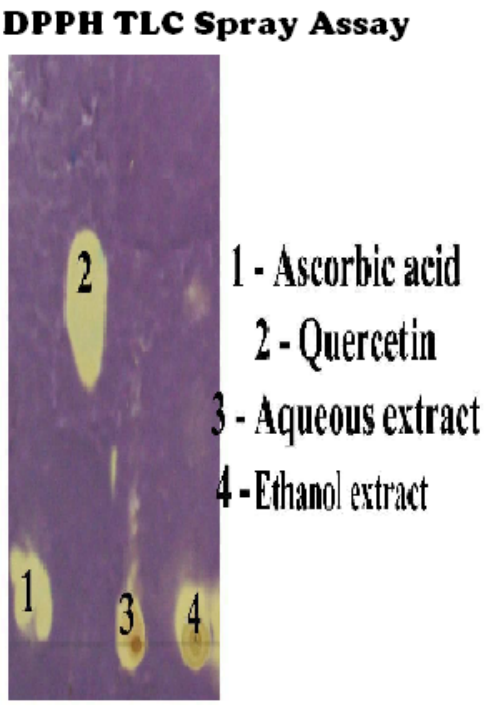


Figure 1: DPPH assay by TLC

Aqueous and ethanol extracts of the plant showed potent antioxidant power by reducing power ability. Aqueous extract of *A. aspera* exhibited better antioxidant power (61.32%) than ethanolic extract (40.78%) at 100µg/ml concentrations. Results of reducing power assay were significantly different among various concentrations tested. Likewise, aqueous extract of *A. aspera* showed significant free radical scavenging activity against superoxide ions. The percentage of scavenging was found to be 66.53% which is a slightly higher than ethanolic extract (63.18%). Ascorbic acid exhibited 50.70% superoxide radical scavenging power at 50µg/ml concentration.

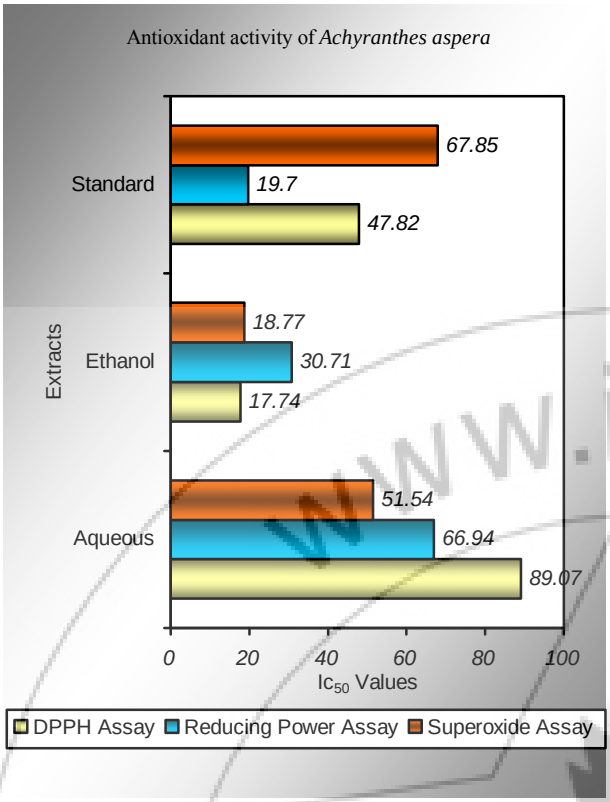


Figure 2: Antioxidant activity of *A. aspera*

The concentration of extracts that showed that produced 50% antioxidant effect i.e IC_{50} values were represented in Figure: 2.

Many researchers [7, 10, 14 and 16] have reported the effectiveness of antioxidant property of the plant. This research also suggests that *A. aspera* can be a proficient alternative medicine for infectious diseases encountered today which could raise the optimism of scientists about the future of phytomedicine.

4. Conclusion

Antioxidant is one of the most essential ingredient of today's therapy because the anti oxidative system protects us against reactive oxygen species (H_2O_2, superoxide, OH, singlet oxygen & nitrogen species) induced oxidative damage.

Aqueous & ethanolic extracts of the plant have been studied for their antioxidant properties using different *in vitro* antioxidant methods. Flavonoids, phenolics, tannins, steroids are found in these two extracts of plant. These extracts showed good antioxidant effect, which could be due to the available phytoconstituents. In this respect, poly phenolic compounds commonly found in plants have been reported to have multiple biological effects like anticancer, antiproliferative, antimicrobial, wound healing, and antibacterial activities including antioxidant activity.

5. Acknowledgement

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6. Future Scope

Herbs have been used traditionally for various purposes, of which, their medicinal values are of great significance. The potentiality of *Achyranthes aspera* has been studied *in vitro* and proved to be an outstanding antioxidant. In future, this study can be further extended *in vivo* in animal cell lines and tissue cultures in the aim of discovering a new drug to combat human diseases.

Author Profile

Ms. S. Varalakshmi received M.Sc., and M. Phil. degrees in Microbiology from Bharathidasan University, Tiruchirappalli, Tamil Nadu, India. She was awarded with Gold Medal for securing the University First Rank in Post Graduation from the same University. Currently she is working as a faculty in Srimad Andavan Arts and Science College, T. V. Koil, Tiruchirappalli.

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