7. CONCLUSION

Plants are an important source of potentially useful structures for the development of new chemotherapeutic agents. Our study on the plant *Sesbania sesban* established that the methanol extract of the stem possess a broad spectrum of activity against a panel of bacteria responsible for the most common bacterial diseases. The phytochemical screening results revealed that the plant is a good source of flavonoids and phenols. It is already reported that flavonoids are natural products which have been shown to possess various biological properties. The plant species assayed also found to possess antifungal properties. This explains the use of the plant in folk medicine for the treatment of various diseases whose symptoms might involve fungal infections and underline the importance of the ethnobotanical approach for the selection of plant in the discovery of new bioactive compounds.

The methanol extract of *Sesbania sesban* stem showed concentration dependent DPPH radical scavenging, reducing power, superoxide radical scavenging and metal chelation activity. This antioxidant effect may be due to the higher content of alkaloids, flavonoids and phenols, highly responsible secondary metabolites for antioxidant activities.

The crude extract and the compounds isolated showed a good anti-proliferative property. Flavonoids greatly influence the cascade of immunological events associated with the development and progression of cancer. Since the observed effects are beneficial, the extract and its constituents including quercetin might be promising candidates for future studies.
Phylogenetic analysis by using bioinformatics tools reveals the phylogenetic evolution and relationship of *Sesbania sesban*. The phylogenetic tree and the derived information signified that the plant is closely related to the other medicinally important plants of leguminosae. This finding supports the medicinal importance of *Sesbania sesban*. *In vitro* results revealed that the plant *Sesbania sesban* could act as an interesting and promising medicinal plant and may be effective as potential source of novel antimicrobial, antioxidant and anti-proliferative drugs. Further, detailed *in-vivo* investigation on the efficiency of the phytocompounds present in *Sesbania sesban* will ensure that the plant could be used as an herbal medicine against human pathogens.