

Study of Total Phenolics, Flavonoids and Antioxidant Activity of *Pongamia pinnata* leaves extract

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ABSTRACT

Pongamia pinnata also known as Karanja belongs to family fabaceae with diverse medicinal properties. Previously restricted to Asia, it may now be found in the Philippines, India, Malaysia, Australia, Hawaii, Oceania, Florida, and the Seychelles. The plant's whole components have been utilised to cure a variety of illnesses such as piles, skin diseases, and wounds. Additionally, the leaves can be used to cure cough and diarrhoea. Leaf juice is used for relieving rheumatic pains and for cleaning ulcers. Therefore the current study's objective was to evaluate the antioxidant qualities, total phenolic content (TPC), and total flavonoid content (TFC) of different extracts (hexane, chloroform, butanol, methanol) of *Pongamia pinnata* leaves. The chloroform extract had more phytochemicals than the other solvent extracts, according to the phytochemical profile screening. These comprised sugar, tannins, glycosides, flavonoids, phenolic compounds, terpenoids, saponins, and steroids. Among all the extracts the chloroform extract showed highest TPC and TFC values followed by hexane extract. All the extracts possess 1,1-diphenyl-2-picryl hydrazyl (DPPH) radical scavenging activity and total antioxidant capacity (phosphomolybdate assay) as well as reducing power ability and this was also supported by significant correlation with TPC and TFC. The presence of high TFC and TPC value in chloroform extract of leaves suggest that it contain large number of secondary metabolites but more research is needed to assess its chemical markers. These findings concluded that the chloroform extract consist of high pharmaceutical value, due to high antioxidant activity.

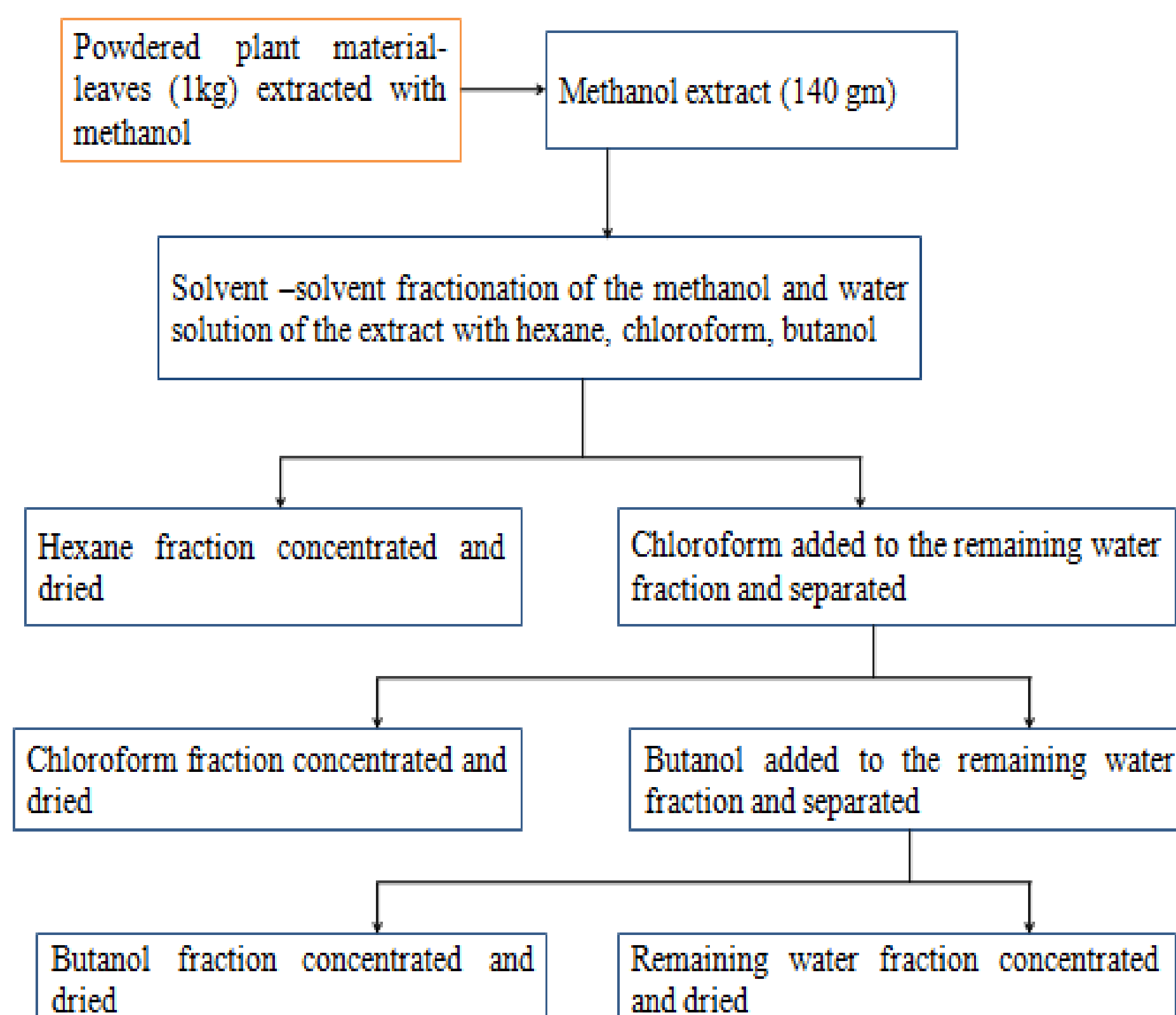
Key words: total phenolic content (TPC), total flavonoid content (TFC), antioxidant, phytochemicals, pharmaceutical value

INTRODUCTION & AIM

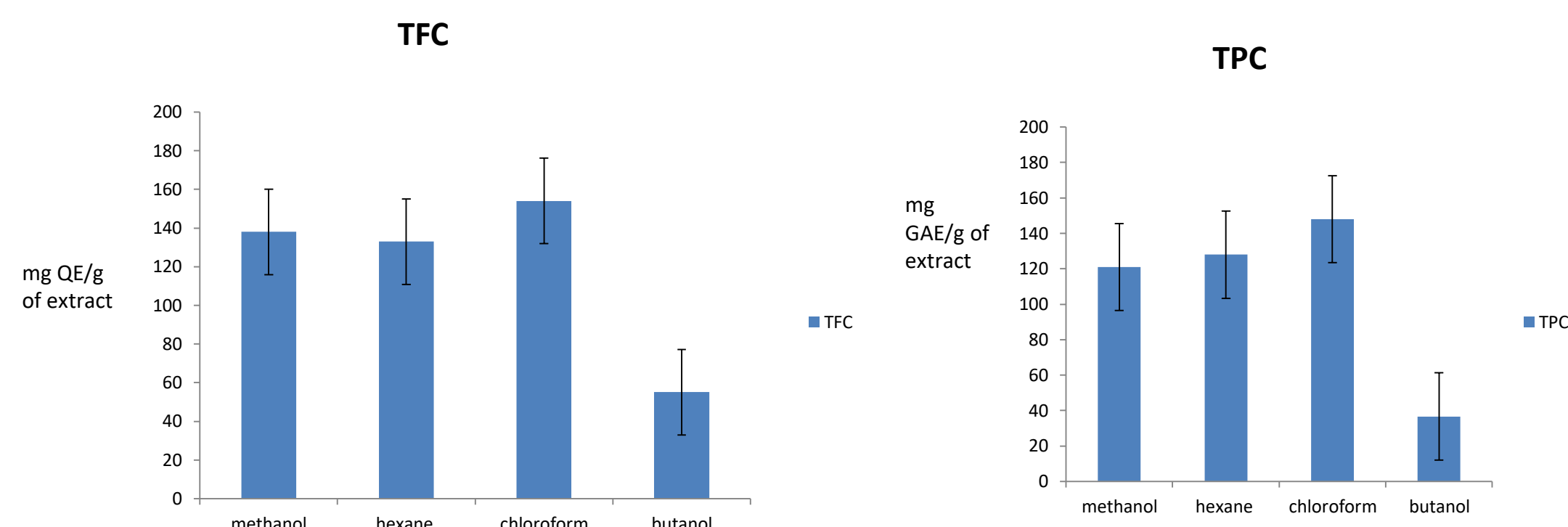
Pongamia pinnata (Linn.) Pierre syn. *P. glabra*, belongs to family Fabaceae, and popularly known as 'Karanj' or 'Karanja'. This tree is indigenous to the Indian subcontinent and south-east Asia. It is medium- sized forest tree with 0.11 million tons of seeds collected every year in India. In addition to being a well-known natural fuel source, the Karanja plant and seeds are also recognised for its therapeutic qualities. Karanja seed oil is non edible but has been identified as good source of biodiesel preparation in India. It has been utilized in Indian folk and traditional medicine, including Ayurveda and Siddha. Diarrhea, ulcers, skin diseases, rheumatic arthritis are treated using different parts of the plant.

It has been reported that the primary phenolic compounds from different parts of the plant include flavones, isoflavones, chalcones, furanoflavonoids, and pyranoflavonoids [5]. Among the 5–6% flavonoids in the seed oil, karanjin, a furanoflavonoid, is the principal component. Karanj has insecticidal and pesticidal properties, as well as potential anti-inflammatory, anti-hyperglycemic, and anti-ulcer properties.

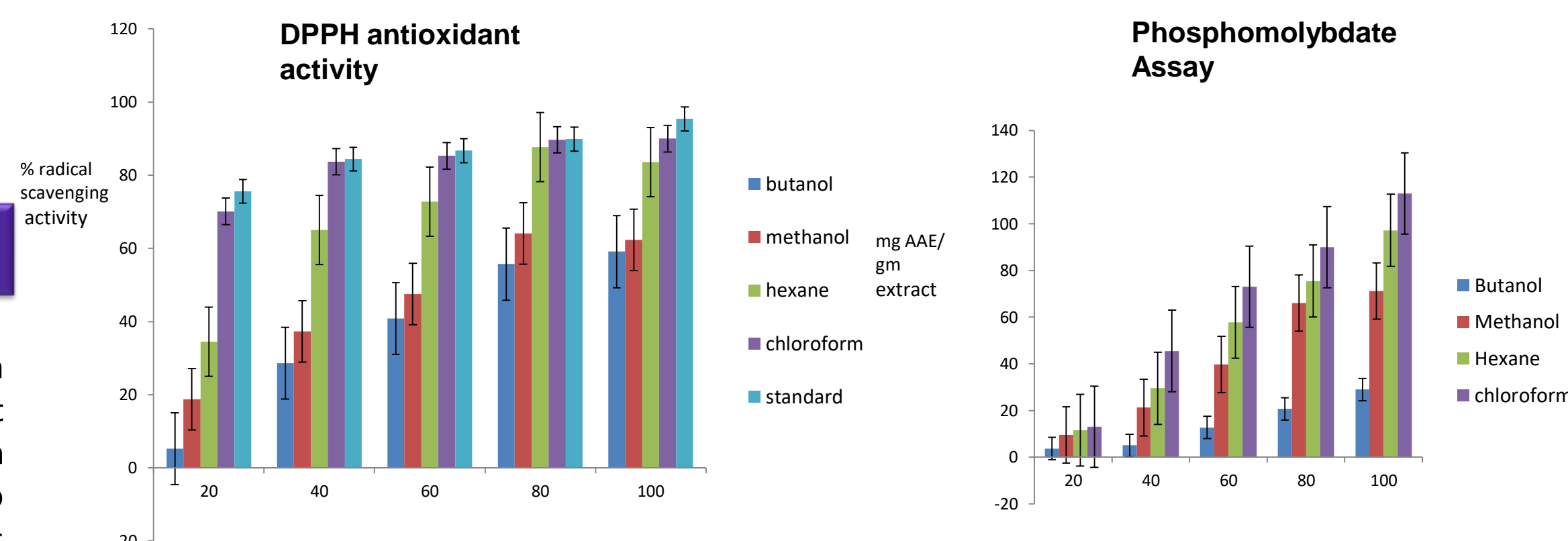
MATERIAL METHOD



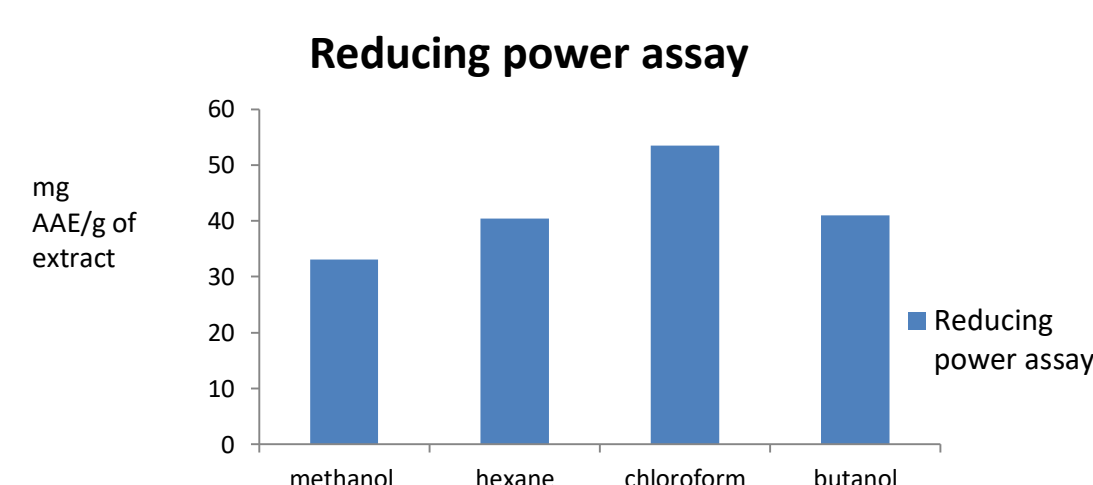
RESULTS & DISCUSSION



The TFC and TPC values for extracts in different solvent were analysed and was found that the TFC and TPC value for chloroform extract was high as compared to other extracts followed by hexane extract.



The DPPH assay and phosphomolybdate assay of different extract showed that the chloroform extract contained highest antioxidant activity as compared to other extracts due to the presence of high TPC and TFC value.



The results of reducing power assay showed highest activity in chloroform extract whereas the hexane and butanol extract showed nearly same activity. The least reducing power activity was observed of methanolic extract.

CONCLUSION

In this research study, comparative analysis of total phenolic and total flavonoid content of leaves extract in different solvents at different concentration was done. The chloroform extract of leaves showed highest flavonoid content and highest phenolic content. The antioxidant activity by DPPH, reducing power assay and phosphomolybdate assay showed that extracts exhibited free radicals scavenging potential.

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