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FERRIC REDUCING POWER OF SOLVENT EXTRACTS OF FRUITS OF *FLACOURTIA JANGOMAS* (LOUR.)

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ABSTRACT:

Flacourtia jangomas (Lour.)Raeusch is an important nutraceutical plant belonging to family Flacourtiaceae. It is having good antioxidant activity. The data reveals the FRAP Assay in ethanolic and chloroform extracts of fruits. With the increase in concentration of extract the absorbance value increases showing increment in FRAP value. Both the extracts were presenting good antioxidant activity but chloroform extract is stronger than ethanolic extract and it is 0.193 in unripe while 0.179 for ripe fruits in chloroform extracts.

KEY WORD: Antioxidant, Nutraceutical, FRAP Assay, *Flacourtia jangomas*.

INTRODUCTION:

Free radicals are normal metabolic byproducts, which are useful in various regulatory processes. However, their excess is required to be controlled by natural antioxidants to maintain equilibrium of pro and antioxidants. When this equilibrium is disturbed due to environmental factors in the metabolic processes, it leads to a cascade of changes associated with increased oxidative stress, tissue destruction and inflammation known to be the cause of disease conditions like atherosclerosis, ischemic disease, hypertension, Alzheimer's disease, Parkinsonism, cancer, diabetes mellitus, inflammatory conditions and also in ageing. There is evidence that antioxidants may be useful in preventing the deleterious consequences of oxidative stress and there is an increasing interest in the protective biochemical function of natural antioxidants contained in vegetables, fruits and medicinal herbs.

Flacourtia jangomas (Lour.)Raeusch (Family: Flacourtiaceae) locally known as Paniala, Indian plum, coffee plum that is important fruit crop having many nutritional as well as medicinal usages. The plant fruit having a remarkable reputation in the treatment of stomachic and digestive; allay thirst, useful in biliousness, fevers and relieves nausea. Leaves and young shoots are prescribed in diarrhoea. Decoction of the bark is useful in biliousness, bleeding gums and toothache. Fruits are having anthocyanin, alkaloids, β -carotene, flavonoids, tannins, saponins and phenolic compounds which prove it a good antioxidant and thus having good reducing power. For the evaluation of reducing power and effect of solvents FRAP Assay has been done in two different solvent extracts that is ethanol and chloroform extracts.

MATERIALS AND METHODS:

Sample preparation

250 mg of sample were mixed with 25 ml of extracting solvent and extracted for 3 h by using electronic shaker. Then centrifuged at 4000 rpm for 20 min, and passed through filter paper (Whatman No. 1) to get clear extract.

FRAP Assay:

In Ferric reducing antioxidant power assay, 1ml of test sample of chloroform and ethanolic extract in different concentration were mixed with 1ml of 0.2M sodium phosphate buffer (pH 6.6) and 1ml of 1% potassium ferricyanide in separate test tubes. The reaction mixtures were incubated in a temperature-controlled water bath at 50°C for 20 min. followed by addition of 1 ml of 10% trichloroacetic acid. The mixtures were then centrifuged for 10 min. at room temperature. The supernatant obtained (1ml) was added with 1ml of deionised water and 200 μ l of 0.1% FeCl₃. The blank was prepared in the same manner as the samples except that 1% potassium ferricyanide was replaced by distilled water. The absorbance of the reaction mixture was measured at 700nm. The reducing power was expressed as an increase in A₇₀₀ after blank subtraction.

RESULTS AND DISCUSSION:

In FRAP Assay a linear increase in reducing power was observed over the particular concentration range. Figures 1-3 reveals the data related to FRAP Assay in ethanolic and chloroform extracts of unripe and ripe fruits of *Flacourtia jangomas*. With the increase in concentration of extract the absorbance value increases showing increment in FRAP value. Both the extracts were presenting good antioxidant activity but chloroform extract is stronger than ethanolic extract. The absorbance value for ethanolic extract of unripe and ripe fruits was 0.137 and 0.168 respectively whereas that in case of chloroform it is 0.193 in unripe while 0.179 for ripe fruits. Higher absorbance of the reaction mixture indicates higher reductive potential. Ascorbic acid is used as standard for comparison.

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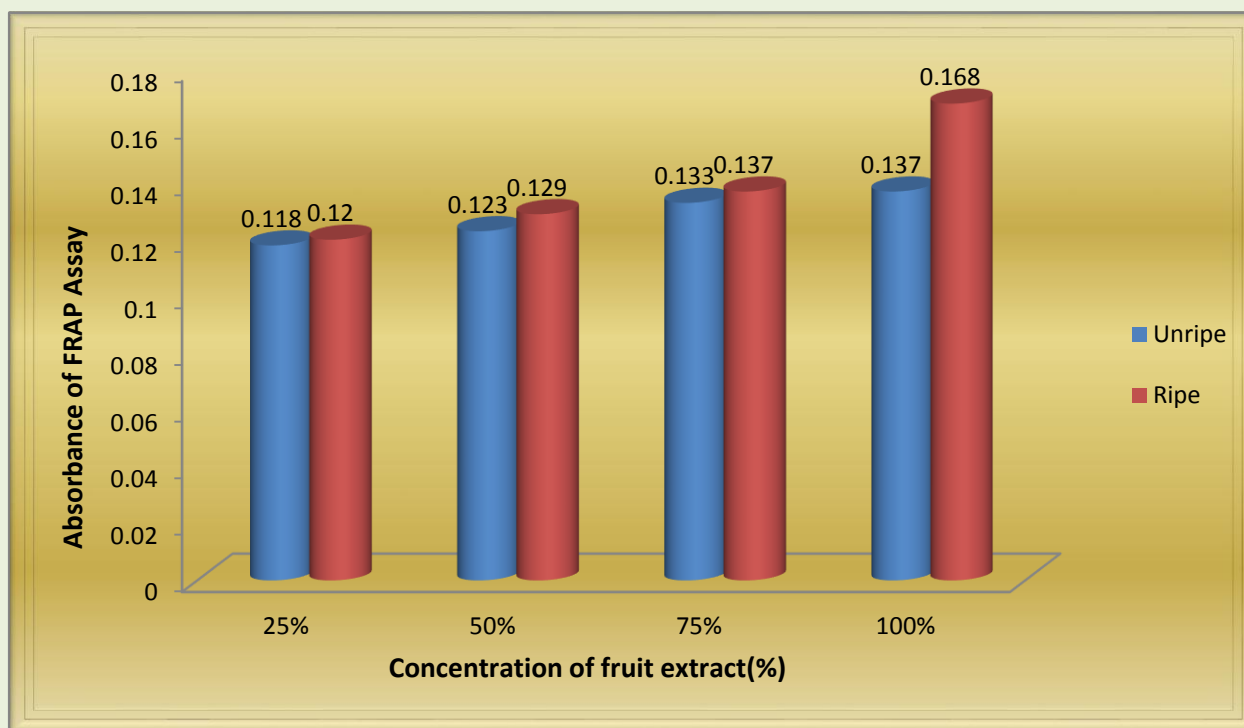


Fig.1: FRAP Assay of fruit sample of Flacourtia jangomas (Lour.)Raeusch using Ethanol as solvent

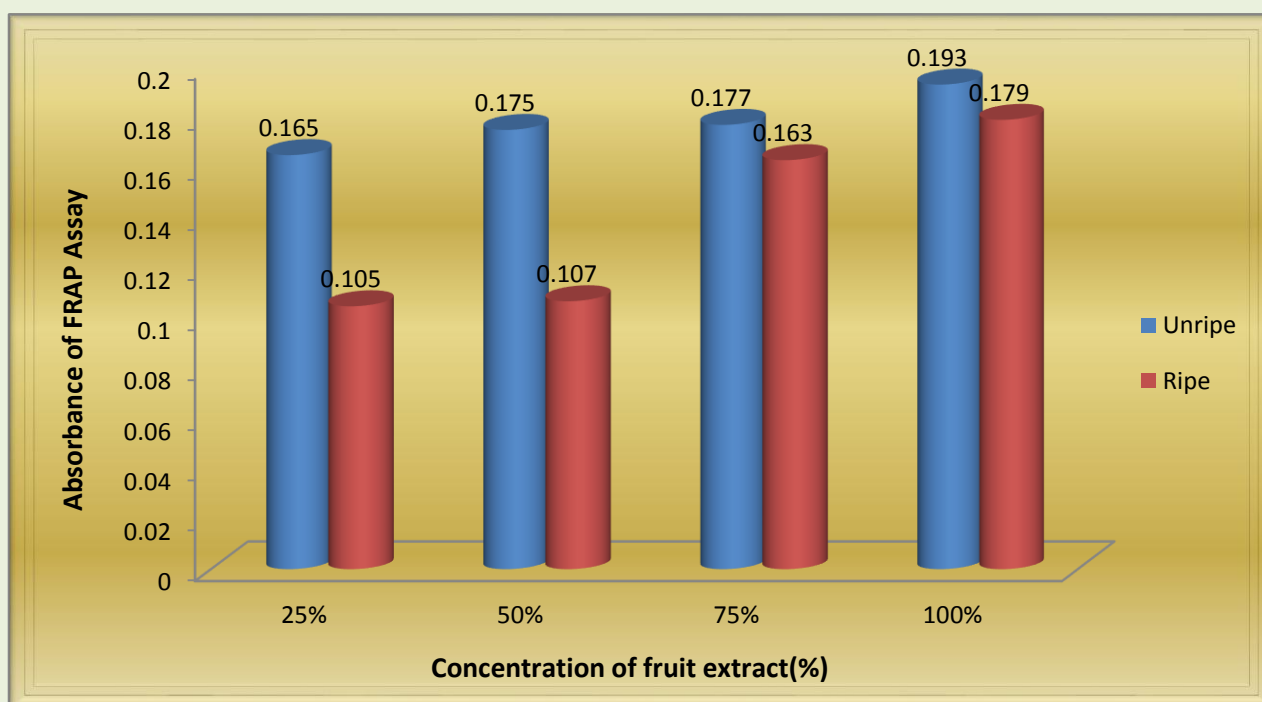


Fig.2: FRAP Assay of fruit sample of Flacourtia jangomas (Lour.)Raeusch using Chloroform as solvent

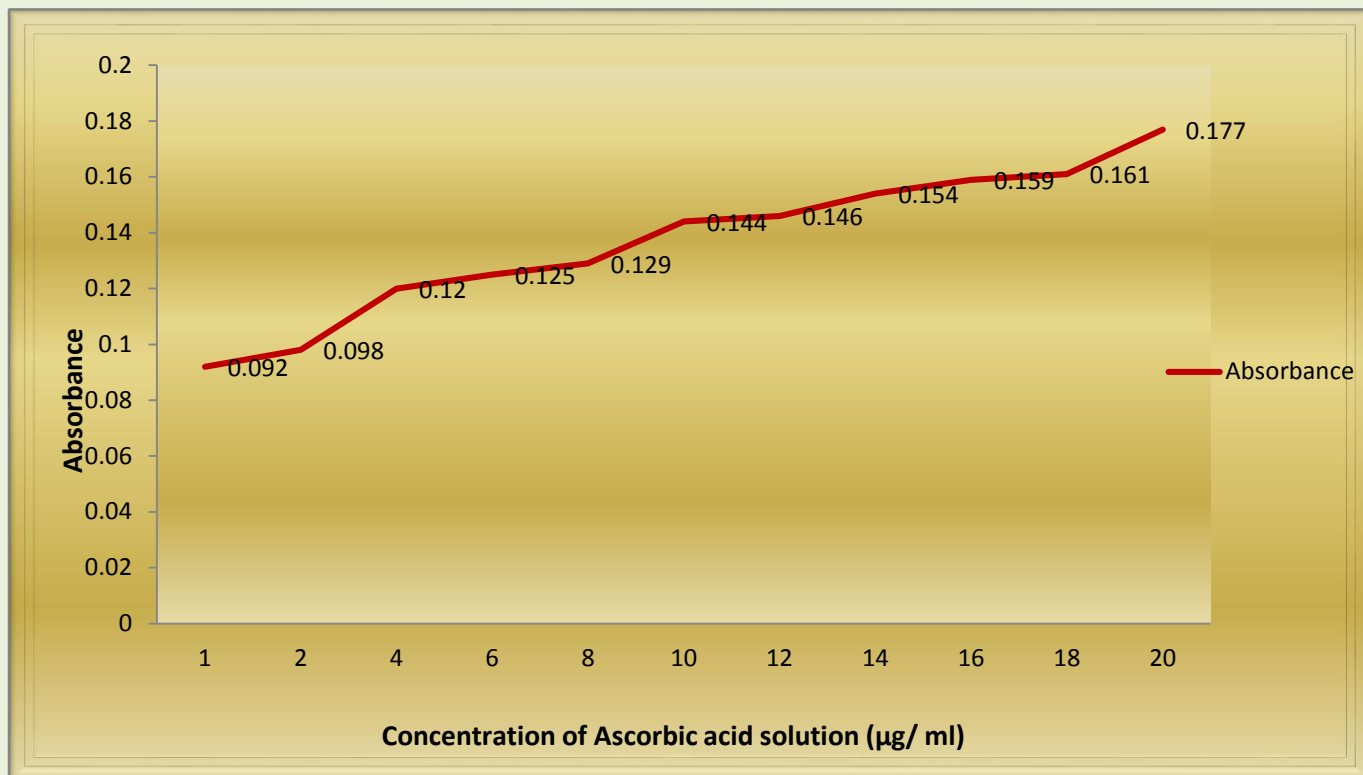


Fig.3: Ascorbic acid (Standard Graph) for FRAP Assay