Anti iron toxicity and Antioxidant Effect of *Camellia sinensis*

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SUMMARY

The study was carried out to evaluate the anti iron toxic and antioxidant activity effect of *Camellia sinensis* on ferrous sulphate induced albino rats. The phytochemical activity of *Camellia sinensis* showed the presence of tannins, alkaloids, flavonoids, steroids, amino acids, reducing sugar and carbohydrate. SGOT (Serum Gluatamate Oxaloacetate Transminase), SGPT (Serum Gluatamate Pyruvate Transminase), Gamma Glutamyl Trasferase (GGT), MDA (malonaldehyde), SOD (Superoxide Dismutase) were also estimated. The result indicated that ethanol extract of *Camellia sinensis* to ferrous sulphate induced rats decreased the level of SGPT from iron intoxication.

Key words : *Camellia sinensis*, Antioxidant activity, Ferrous sulphate, Malonaldehyde

Iron poisoning is a common problem in all developed and many developing countries. In the United Kingdom, it accounts for 15 to 20% of all medical emergency admission to hospitals. Iron poison is one of the most common causes of childhood poisoning death (Litovitz and Manoguerra, 1992; Andrews, 1999).

Iron has several vital functions in the body as a carrier of oxygen to the tissue from the lungs, as a transport medium for electrons within cells and as an integrated part of important enzyme reaction in various tissues. The main part of iron in the body is present in the red cells as hemoglobin, which is a molecule composed of 4 units, each containing one haem and protein chain (Thakerngpol *et al*., 1990; Chapman and Hall, 1995).

The normal level of iron in male is 50-160 mg/dl and the value of iron in female is 45-150 mg/dl. If the iron content is deficient, it leads to anaemia. But if the iron is excess in body, it leads to iron toxicity, *i.e*., iron overload. Iron overload is known as hemochromatosis. The body normally absorbs less iron if its stores are full, but some individuals are poorly defended against iron toxicity. Once considered rare, iron overload has emerged as an important disorder of iron metabolism (Nichaus and Sanuelsson, 1968).

MATERIALS AND METHODS

The samples were collected from Tamil University Herbal Garden. Colleted plants were carefully examined and identified with the help of regional floras (Gamble, 1975; Mathew, 1983; Nair and Hendry, 1983; Henry *et al*., 1987). Specimens were further confirmed with reference to Herbarium sheet available in the Botanical Survey of India, Southern Circle, Coimbatore. The plant samples were collected and dried under shade. These powdered materials were used for further physio-chemical, phyto-chemical and florescent analyses. Iron in the form of ferrous sulphate (500 mg) was dissolved in distilled water and given orally to rats to develop iron toxicity. In experiment, 16 albino rats were used. The rats were divided into the following 4 groups of 4 rats each.

Group I: Normal animals received with standard feed and water to allow adlibitum

Group II: Iron treated experimental control rats. [Ferrous sulphate (500mg/10ml H_2O) given orally for 20 days].

Group III: Along with ferrous sulphate the ethanol extract of *Camellia sinensis* (1gm / ml) given orally for 20 days.

Group IV: Ethanolic extract of leaf (1g/ml) given orally for 20 days.

After treatment for 20 days, the animals were sacrified with ether anesthesia. The blood was collected by cardiac puncture and then centrifuged at 2000 rpm and stored under 4°C until analysis. The liver homogenate was also taken for the biochemical analysis. SGOT, SGPT, GGT, MDA, SOD were estimated (Kakkar and Dar Viswanathan, 1999, Samman,

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