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The synergistic effect of aged garlic extract and methotrexate in collagen-induced rheumatoid arthritis in male Albino rats

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Aged Garlic Extract (AGE) exhibit a significant anti inflammatory effect in numerous diseases. However, the anti inflammatory effects of AGE in arthritic conditions not well documented and the Methotrexate (MTX) is an anchor drug used to treat rheumatoid arthritis (RA), but responsiveness is variable in effectiveness and hepatotoxicity in healthy and collagen-induced arthritis (CIA)-rats. Therefore, the present study used adult female rats divided into 8 groups of rats: Control healthy, CIA, CIA treated with AGE and/or MTX, healthy treated with AGE and/or MTX. Arthritis induced by intradermally injection of collagen complete Freund's adjuvant (CFA) emulsion (4 mg/kg) at the base of the tail in each rat. All treatments started once the peak symptoms of arthritis appeared (20th day). AGE treatment (from day 21 to 50) 200 mg/kg/PO. CIA-rats injected by subcutaneous dose of 1.5 mg/kg per 2 days of MTX from day 21 to 43. Efficacy of AGE alone or combined with the medicine was assessed based on the ability to reduce paw oedema, histopathological changes, reduction of the liver enzyme activities and oxidative parameters, elevation of hepatic antioxidant enzymes, arthritis-induced changes in body weight, C-reactive protein (CRP), Serum Tumour Necrosis Factor (TNF) α and interleukin (IL)-17 levels. The study aimed to evaluate the anti-inflammatory effect in CIA-rats of AGE alone and its synergetic activity in combination treatment with methotrexate and its protection against methotrexate induce toxicity.

Provenance variation for seedling parameters of *Cassia fistula* L. in agro-climatic zones of northern Karnataka

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World Health Organization estimated that 80 per cent of the population of developing countries depends on traditional medicines. Among which India's contribution is 15-20 % for 2000 drugs of plant origin. Demand for medicinal plants is increasing because of having no side effects, easily available at affordable prices and sometimes the only source of health care available to the poor. *Cassia fistula* L. is an important medicinal plant valued for ornamental purposes. The present study was undertaken to evaluate the growth performance of provenances of *Cassia fistula* from five agro climatic zones of northern Karnataka viz., North-eastern transition zone, North-eastern dry zone, Northern dry zone, Northern Transitional zone and Hilly zone. Significant differences among the provenances were observed for various seedling parameters. Results revealed that the seedlings grown from the seeds collected from Hilly zone and Northern Transitional zone showed better performance. The maximum Chlorophyll content was found in Hilly zone (21.90 mg/ g fresh weight) followed by Northern Dry zone (20.50 mg/ g fresh weight). However the lowest Chlorophyll content was found in the North Eastern Transition Zone i.e. 19.10 mg/ g fresh weight. At 180 days after germination average relative water content (%) varied significantly. Significantly more relative water content was recorded in Hilly zone (90.0). The lowest relative water content was observed in Northern Dry zone (82.6). Therefore, seeds from these two provenances can be used for future afforestation programme.