

ORIGINAL ARTICLE

EFFECTS OF *SPIRULINA* AGAINST BPA TOXICITY ON MALE ALBINO WISTAR STRAIN RATS

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Abstract: Bisphenol-A (BPA) is a colorless, solid, chemical compound primarily used in the manufacturing of various plastics, soluble in most common organic solvents, but has very poor solubility in water. It has been reported that *Spirulina* has antioxidative, immunomodulatory, and anti-inflammatory properties and works against heavy metal toxicity. It is often used as a food supplement in human, animals, birds and fishes. This study aimed to assess the protective action of the dietary *Spirulina* against the toxic effects of BPA on testes and bone marrow chromosomes in male rats. Twenty adult Wistar Strain Male Albino Rats were randomly divided into four equal groups (n=5), namely, Group-A, B, C, D and kept under controlled environmental condition (22°C, 12-h light–dark cycle) and food and water were given adlib tum. After 7 days of acclimatization, Group-A treated as control. Rats of Group-B, C and D were given 100 mg BPA/kg body-weight. Additionally, Group-C and D were given 500 and 1000 mg *Spirulina*/kg body-weight respectively mixed with rat feed. After 24 days all rats were sacrificed. Histological studies were done by routine H-E method and diameter of the seminiferous tubules, its lumen, nucleus of spermatogonia and width of germinal epithelium were measured. Serum testosterone level was measured by rat specific ELISA kit and somatic chromosomes were also prepared from bone marrow by following colchicine–hypotonic-aceto-alcohol fixative–flame drying technique. Results showed that BPA affects the testes and bone marrow chromosome compared to control group. Administration of *Spirulina* to Group C and D showed gradual recovery of testes architecture and bone marrow chromosome in compare to BPA treated rats. Serum testosterone concentration is lowest in Group-B, whereas Group-C and D have achieved normal testosterone level. Chromosomal abnormalities such as chromatid break, deletion etc. were significantly increased in BPA group compared to group A, C and D (2n=42). Thus, the present study establishes the protective role of *Spirulina* against the bone marrow chromosomal aberration and testicular damage caused by BPA.

Keywords: BPA, *Spirulina*, testes, testosterone, bone marrow chromosomal aberrations.