Catechin: An effective epigenetic regulator against drug side-effects.

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Epigenetic changes have emerged as key mechanisms in understanding side effects induced by the chronic disease medications. We used Streptomycin and Isoniazid that are commonly used in treatment of Tuberculosis to study the epigenetic changes caused by them and the relative side effects that are caused due to these changes. Drosophila melanogaster (A fruit fly) and Human cell line(HEK 293 cells) were used to study the epigenetic changes caused by intake of- - Common analgesic drugs : Aspirin and Paracetamol - Commonly prescibed drugs for TB : Isoniazid and Streptomycin. • Plant component used- Catechin hydrate (Active component of Camellia sinensis). • Combination of these drugs and Catechin hydrate were finally used to find a link between epigenetic changes and side effects induced by the Streptomycin and Isoniazid. Drosophila melanogaster and HEK 293 cells were fed and treated respectively by the drugs and catechin hydrate separately and then in combinations of both. Epigenetic changes were then observed through Western Blotting. The results demonstrated that the drugs showed a large amount of activation of genes which is responsible for the side effects and catechin hydrate showed a repressive effect against the activation induced by the drugs. Through statstical analysis (One-Way ANOVA) results were shown as significant finally concluding that catechin hydrate can be used as a cost effective, easily accessible and potent regulator against the side effects induced by the above mentioned chronic disease drugs. Thus, studying epigenetic responses of Catechin hydrate proved to be an efficacious way for a new approach to control side effects of chronic disease medications.

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