**The role of guarana plant extract in cancer treatment**

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**‌ Statement of Problem:** Patients with breast cancer (BC) frequently undergo systemic chemotherapy, which can cause cancer-related fatigue and have a negative impact on the patients' quality of life.

**Research Purpose:** To treat fatigue in BC patients after chemotherapy was tested using guarana (Paullinia cupana) extract as a stimulant.

**Description of the problem:** It is unclear whether guarana extract could help BC patients feel less tired, and it would be interesting to learn more about how it works.

**Results and Conclusion:** When guarana dry extract was administered orally in doses of 30, 100, and 300 mg/kg, the serum level of Interleukin 1 (IL-1) was found to have significantly decreased. The level of Interleukin 6 (IL-6) did not change significantly at the same time. It's interesting to note that guarana extract treatment significantly reduced the brain levels of IL-6 and tumour necrosis factor (TNF) mRNA that were elevated in stimulated animals. The expression of cyclooxygenase 2 (COX2) and nuclear factor kappa-light chain-enhancer of activated B cells (NF-kB) in brain tissue was later found to be significantly reduced by guarana extract, according to data. Guarana therefore has anti-inflammatory properties, which may account for its anti-fatigue effects. Guarana may also help with additional cancer-related symptoms that are brought on by an imbalance in the expression of anti-inflammatory cytokines. In conclusion, after using the guarana plant to treat their cancer-related fatigue, breast cancer survivors have reported a noticeable reduction in the frequency and intensity of hot flashes. For BC patients receiving temporary chemotherapy, guarana is an alternative, cost-effective, and secure treatment option.

**Keywords:** breast cancer, guarana, fatigue