

عنوان مقاله:

Determination of Caffeine, Total Phenol, and Heavy Metals Content in Green and Black Tea Collected From Gilan Province, Iran by spectroscopic method

محل انتشار:

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خلاصه مقاله:

Background: Because of its stimulating and valuable effects, tea is the most commonly used beverage in the world after water. These effects are due to caffeine and phenolic compounds in tea. Also, most of the tea in Iran is planted in Gilan Province. However, food pollution from heavy metals is one of the most important problems. Objectives: In this research, we measured the total phenolic content, caffeine, lead, cadmium, and chromium in green and black tea cultivated in Gilan Province. Methods: Ten samples of green and black tea were purchased from different regions of Gilan Province. Methanol and dichloromethane extracts were prepared. Total phenol and caffeine were detected by spectroscopy. Quantification of heavy metals was done by digestion methods and examined by atomic absorption spectrophotometer. Results: The Mean \pm SD amounts of total phenolic content, caffeine, lead, cadmium, and chromium in green tea from all regions comprised $27.13 \pm 1.54\%$, $3.20 \pm 0.01\%$, 0.81 ± 0.66 ppm, 1.54 ± 1.39 ppm, and 0.28 ± 0.20 ppm, respectively, and these amounts in black tea were $14.90 \pm 1.53\%$, $3.20 \pm 0.05\%$, 1.00 ± 0.79 ppm, 1.65 ± 0.93 ppm, and 0.24 ± 0.15 ppm, respectively. Conclusion: The content of total phenol and lead in tea was different in various regions of Gilan Province. Green tea contains more phenolic compounds than black tea, but the caffeine in green and black tea is almost equal. The amounts of cadmium and chromium in some Gilan Province areas are higher than the standard level, which needs to be investigated.

کلمات کلیدی:

Caffeine, Phenol, Lead, Cadmium, Chromium, Camellia sinensis

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