

## News &amp; Comments

## Edible Flowers as a Potential Dietary Supplement and Nutraceutical for Use as Functional Foods

*Rasha Kamal*

From descriptions detailed in ancient literature, a basic understanding of edible floral preparations has been preserved. Roses were utilized as flavorings in teas, candies, pastries, preserves, and sauces in Victorian-era England. Edible flowers are a rich source of nutrients such as carbs, protein, fat, minerals, and vitamins in addition to being healthy and suitable for the majority of culinary uses. In subtropical Asia, daylilies (*Hemerocallis* spp.) have been used as food for a very long time. In this study, the daylily cultivars Barbara Mitchell (BM) and Elegant Explosion (EE) will be evaluated for their polyphenol content and antioxidative activity as well as their potential for acute *in vitro* toxicity (cytotoxicity, apoptotic activity, and antiproliferative properties) in the HepG2 hepatic cell line.

The study was carried out in the Department of Food Science at Alabama A and M University, Normal AL, United States. Daylily plantlets of the varieties Elegant Explosion (EE) and Barbara Mitchell (BM) were purchased from Bennett Nurseries, a nearby nursery that grows and sells edible flowers. Fisher Scientific (Suwanee, GA) and Sigma Aldrich provided the chemicals and reagents utilized in this investigation, which were the entire pure analytical grade (St. Louis, MO). For a week, the daylily flowers of Barbara Mitchell and Elegant Explosion were gathered while they were in full bloom. Weighed and homogenized in 200 mL of 80% ethanol were about 70 g of flowers. Centrifugation (3000 rpm at 4°C for 20 min.) was used to extract the supernatant. The Folin-Ciocalteu method, as modified for the microplate was used to determine the TPC of daylily extracts.

In comparison to other research, the TPC recorded in this study was lower. This variance could be a result of the solvents used or the extraction technique. TPC variation may also be impacted by some variables, including genotype, environment, location, altitude, UV exposure, season, soil, maturation stage at harvest, post-harvest circumstances, etc. This demonstrates their potential as significant medicinal agents and for raising food quality. We did not find gallic acid in our samples, even though it is one of the most prevalent phenolic acids in food plants. As the concentration of EE extract rose, the data showed no discernible change in GSH levels. Others have proposed that phenolic substances may increase GSH production during oxidative stress if their concentration does not compromise cell viability.

In a preliminary analysis, the polyphenol content and antioxidant activity of herbal extracts from the



daylily flower cultivars Elegant Explosion (EE) and Barbara Mitchell (BM) were assessed. Additionally, the *in vitro* evaluation of the EE extract's bioefficacy (impact on endogenous antioxidant enzymes) and safety (cytotoxicity/cell viability) was conducted. The findings showed that EE extracts had greater levels of TPC, TFC, TMA, polyphenols, and inhibitory free radical scavenging compounds. Additionally, weak to moderate cytotoxicity was produced by EE extracts.

#### **JOURNAL REFERENCE**

Johnson, J., S. Ogutu and J. Boateng, 2021. Antioxidant and *in vitro* toxicity assessment of elegant explosion daylily flower (*Hemerocallis* spp.) extract in hepatic cell line. *J. Pharmacol. Toxicol.*, 16: 22-36.

#### **KEYWORDS**

Edible flowers, daylily, superoxide dismutase, cytotoxicity, nutraceutical, phenolic compounds, endogenous antioxidants

