# Effect of light-emitting diodes (LEDs) on the quality of fruits and vegetables during postharvest period: a review

**Sanusi Shamsudeen Nassarawa, Asem Mahmoud Abdelshafy, Yanqun Xu, Li Li and Zisheng Luo**

Food and Bioprocess Technology 14: 388–414. 2021.

## Abstract

Major losses of fresh horticultural produce transpire during postharvest storage due to prompt senescence and diseases. The traditional postharvest preservation techniques used after harvest are based on cooling and the application of chemical preservation techniques. As a residue-free physical sterilization and preservation method, light-emitting diode (LED) treatment, has recently been applied for postharvest storage of fruits and vegetables by numerous researchers. This paper reviews the recent applications of LEDs in postharvest storage of fresh produce, including its effect on physiological characteristics, secondary metabolism, nutritional attributes, ripening process, senescence, shelf-life improvement, and pathogenic microbial spoilage of fruits and vegetables. LED treatment has promoted the accumulation of different phytochemicals, such as phenolic compounds, vitamins, glucosinolates, chlorophyll, total soluble solids, and carotenoids. Changes in the nutritional content, anthocyanin content, antioxidant capacity, and ripening were also observed after the treatment. Reduction in microbial spoilage and delay senescence were evident after the LED exposure. The influence of LED light depended on the fruit and vegetable variety. Therefore, LED treatment is an efficient and promising strategy for extending the storage life of fruits and vegetables with enhanced nutritional values.