Curr Top Med Chem. 2021;21(12):1067-1095. doi: 10.2174/1568026621666210509161059.

Bioactive Compounds Effective Against Type 2 Diabetes Mellitus: A Systematic Review

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PMID: 33966619 DOI: 10.2174/1568026621666210509161059

Abstract

Background: Type 2 diabetes (adult onset diabetes) is the most common type of diabetes, accounting for around 90% of all diabetes cases with insulin resistance and insulin secretion defect. The key goal of anti-diabetic therapy is to increase the development of insulin, immunity and/or decrease the amount of blood glucose. While many synthetic compounds have been produced as antidiabetic agents, due to their side effects and limited effectiveness, their usefulness has been hindered.

Methods: This systematic review investigated the bioactive compounds reported to possess activities against type 2 diabetes. Three (3) databases, PubMed, ScienceDirect and Google Scholar were searched for research articles published between January 2010 and October 2020. A total of 6464 articles were identified out of which 84 articles were identified to be elligible for the study.

Result and discussion: From the data extracted, it was found that quercetin, Kaempferol, Rosmarinic acid, Cyanidin, Rutin, Catechin, Luteolin and Ellagic acid were the most cited bioactive compounds which all falls within the class of polyphenolic compounds. The major sources of these bioactive compounds includes citrus fruits, grapes, onions, berries, cherries, broccoli, honey, apples, green tea, Ginkgo biloba, St. John's wort, green beans, cucumber, spinach, tea, Rosmarinus officinalis, Aloe vera, Moringa oleifera, tomatoes, potatoes, oregano, lemon balm, thyme, peppermint, Ocimum basilicum, red cabbage, pears, olive oil and walnut.

Keywords: (T2DM); Anti-diabetic agents; Bioactive compounds; Flavonoids.; Medicinal plants; Phytochemicals; Polyphenols; Type 2 diabetes.

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