

Categories of bioactive substances in food supplements and their therapeutic potential against DM FS contain various biologically-active ingredients that play a role in DM. These ingredients, which include polyphenols, polysaccharides, terpenoids, saponins, alkaloids, and others, reveal a wide range of biological activities against DM. Polyphenols Depending on their sources and chemical makeup, polyphenols are divided into various classes. According to several research, polyphenols prevent DM by targeting insulin cells, blocking glucose absorption and digesting enzymes, controlling gut microbiota, reducing inflammation, and preventing the development of advanced glycation end products. Numerous studies have been conducted on polyphenols to learn more about their special anti-inflammatory and antioxidant properties as well as their potential therapeutic benefits in the treatment of cardiovascular disease, diabetes, and hypertension [19]. Fruits like *Graptopetalum paraguayense*, *Paullinia cupana*, and *Astilbe thunbergii* are well-known sources of phenolic metabolites that also have good anti-diabetic properties.