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Editorial Open Access

Nutraceuticals as Emerging Antiangiogenic Agents

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Editorial

Nutraceuticals provide us with nutritional needs along with health benefits by preventing the pathological conditions from arising. Therefore, nutraceuticals engrave a great promise to improve human health and nutrition. The term nutraceutical emerged from the terms, nutrition and pharmaceutical and involves food that provides health benefits either by preventing the onset of disease or via treating the disease. Nutraceuticals have already been used for the treatment of diabetes, depression, arthritis, inflammation and presently they have been explored for their effect on angiogenesis that is associated with a broad array of pathological conditions such as cancer, diabetes, age related macular degeneration, retinopathy of prematurity etc. Angiogenesis, the formation of new blood vessels from the pre-existing ones, plays an important role in cancer formation and therefore the development of antiangiogenic agents to block new blood vessels growth will possibly inhibit the progression of tumour growth. Presently, nutraceuticals are being looked upon for their role as antiangiogenic agents.

Several components from food resources have shown potent antiangiogenic efficacy via different mechanisms of action. The antiangiogenic nutraceuticals include flavones that mediate antiangiogenic effect via inhibition of HUVEC (human Umbilical vein endothelial cells) proliferation. Other examples include yellow coloured flavouring agent curcumin that show antiangiogenic effect via inhibition of the pro-angiogenic growth factors such as VEGF (vascular endothelial growth factor) and bFGF (basic fibroblast growth factor), antiangiogenic polyphenols from green tea and red wine cause scavenging of reactive oxygen species, genistein inhibits VEGF and matrix metalloproteinase induced angiogenesis while resveratrol exhibits antiangiogenic action via inhibiting the VEGF induced proliferation of new blood vessels. The above examples depict the inherent potential of nutraceuticals and demand their further explorations for curing the diseases associated with angiogenesis.

Nutraceuticals are not only effective in curing the diseases associated with angiogenesis but also offer a cheaper and accessible mode of antiangiogenic therapy. The current antiangiogenic therapies include the usage of monoclonal antibodies such as bevacizumab that are relatively costly so as to be afforded by a common man. This situation can be overcome by the emergence of nutraceuticals as newer antiangiogenic agents that would treat angiogenesis related diseases at a relatively lesser cost in comparison to the presently available antiangiogenic therapies. Therefore, the development of nutraceuticals as antiangiogenic agents would not only provide cheaper and alternative therapies for treating diseases associated with angiogenesis but would also benefit the patients with their nutritive value.