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Role of Polyphenolic Compounds in Management of Oxidative Stress Associated With Glaucoma

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Abstract: ***Glaucoma is a first rank common cause of irreversible vision loss. It is also recognized as a neurodegenerative disease which progress with age, results in optic neuropathy. The exact cause of glaucoma remains unclear although oxidative stress considered as one of the reasons for cell death in the retinal ganglion cell and retinal pigment epithelium. Oxidative stress could result after imbalance between formation and utilization of reactive oxygen species. Current pharmacotherapy of glaucoma includes lowering down of elevated level of IOP, which is not sufficient enough to retard irreversible vision loss in some instances. Hence, alternative neuroprotective therapy is warranted. Polyphenolic compounds possess antioxidant, anti-inflammatory properties and also show the neuroprotective effect in an experimental model. Amongst the natural polyphenolic compounds resveratrol, curcumin, rutin, quercetin, myricetin have been studied and showed potential as neuroprotection against cell apoptosis. Moreover, the extra supplement of a polyphenolic compound may also improve antioxidant status, which was underestimated in glaucoma disorder. Despite the potential, the polyphenolic compounds yet to explore for clinical use in ocular disorder. Hence it is an excellent opportunity for the future researcher to transform these substances from lab to clinic as neuroprotectants in glaucoma.***

Keywords: Resveratrol, curcumin, quercetin, oxidative stress, glaucoma

1. INTRODUCTION:

Vision loss by eye disorders may affect healthy life and create a socioeconomic burden [1]. Worldwide, glaucoma is the first common cause of irreversible vision loss. [2, 3]. Glaucoma is an age-related eye disorder affecting around 60 million populations across the world. It is expected to affect over 110 million individuals by 2040 [4]. Glaucoma was