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Omparative *In-vitro* Cytotoxic Evaluation and Antioxidant Potential of Naringin and Qurcetin-3-O-Rhamnoside

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In-vitro cytotoxic and cell viability assays of two pharmacologically active polyphenolic compounds were performed on breast cancer cell lines. Further, antioxidant potential of these molecules was studied on oxidative damage of DNA *in-vitro*. Two naturally occurring flavonoids naringin (NA) and Quercetin3-O-rhamnoside (Qr) were evaluated for their cytotoxic activity against MCF-7 cell lines using SRB assay protocols at various concentrations of 25, 50, 100 and 200 µg. Also, MTT and trypan blue cell viability assays were done on these concentrations. Oxidative defence of DNA cleavage (H₂O₂ and UV) was checked using pBR322 DNA at concentrations of 25, 50 and 100µg. Both NA and Qr showed >65% of cell death (inhibitory) activity in a concentration dependant manner (n=3, p<0.001) as compared to control. Moreover, <45% of cell viability was recorded at highest concentrations of NA and Qr. Further, at 50 and 100 µg conc. Of NA and Qr both showed complete (100%) protection of DNA from UV and H₂O₂ induced oxidative damage. Both molecules consist of cytotoxic potential towards breast cancer cell lines and have low cell viability at higher concentrations and also have an antioxidant activity against oxidative DNA cleavage. These two properties lead these molecules for future *in-vivo* studies and a prospective of having anticancer potential. The metabolism of these flavonoids is a vast field of study which further leads them toward their delivery through Novel drug delivery systems to enhance their efficacy.