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Bioactivity of synthetic chalcones in MRC-5 SV2 cells

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Recently researchers have shown an increased interest in chemoprevention using natural products to prevent cancer occurrence and to slow its progression. Chalcones belong to the flavonoid family of phytochemicals and have been extensively investigated for their chemopreventive capacity, and found to induce a battery of cellular detoxification enzymes through activation of the transcription factor NF-E2 p45-related factor-2 (Nrf2) [1,2]. Additionally, chalcones are known to inhibit DNA synthesis consequently inducing cell cycle arrest [3].

In this study, we have investigated the ability of a library of novel synthetic chalcones to induce the classical Nrf2 stimulated gene NAD(P)H: quinone oxidoreductase-1 (NQO1) in MRC-5 SV2 cells (human lung epithelial cancer). NQO1 protein induction was assessed by western blotting and the results showed that five chalcones induced NQO1 protein at 24 h. Interestingly, it was also noted however that chalcones (at non-toxic concentrations) decreased cellular viability in presence of malondialdehyde.

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References

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