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Tea phenols in bulk and nanoparticle form modify DNA damage in human lymphocytes from colon cancer patients and healthy individuals treated *in vitro* with platinum based-Chemotherapeutic drugs

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Tea catechin epigallocatechin-3-gallate (EGCG) and other polyphenols, such as theaflavins (TFs), are increasingly proving useful as chemopreventives in a number of human cancers. They can also affect normal cells. The polyphenols in tea are known to have antioxidant properties that can quench free radical species, and pro-oxidant activities that appear to be responsible for the induction of apoptosis in tumour cells. The bioavailability of these natural compounds is an important factor that determines their efficacy. Nanoparticle (NP)-mediated delivery techniques of EGCG and TFs have been found to improve their bioavailability to a level that could benefit their effectiveness as chemopreventives. The results of DNA damage measurements by the Comet assay revealed opposite trends in bulk and NP forms of TFs, as well as EGCG. Both the compounds in the bulk form produced statistically significant concentration-dependent reductions in DNA damage in oxaliplatin- or satraplatin treated lymphocytes. In contrast, when used in the NP form both TFs and EGCG, although initially causing a reduction, produced a concentration-dependent statistically significant increase in DNA damage in the lymphocytes. These observations support the notion that TFs and EGCG act as both antioxidants and pro-oxidants, depending on the form in which they are administered under the conditions of investigation.

Biography

Diana Anderson currently holds the Established Chair of the Division of Biomedical Sciences at the University of Bradford, UK. She obtained her first degree in the University of Wales and second degree in the Faculty of Medicine, University of Manchester. After tutoring at the University of Sydney, Australia, she became a research worker in the Department of Cancer Studies at the University of Leeds and at the Paterson Laboratories, Christie Hospital, Manchester. She has organized both national and international meetings and was/is a member of various national (e.g. MRC Advisory Board, Veterinary Products Committee) and of international committees, including the European Union Scientific Committee for Animal Nutrition (SCAN). She recently won a prize as an Enterprise Fellow. She has hosted and participated in 56 meetings for WHO/IPCS. She is a consultant for many international organizations, such as the WHO, NATO, TWAS, UNIDO and the OECD.

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