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Antioxidant activity of 5-FU and new fluorinated uracil derivates

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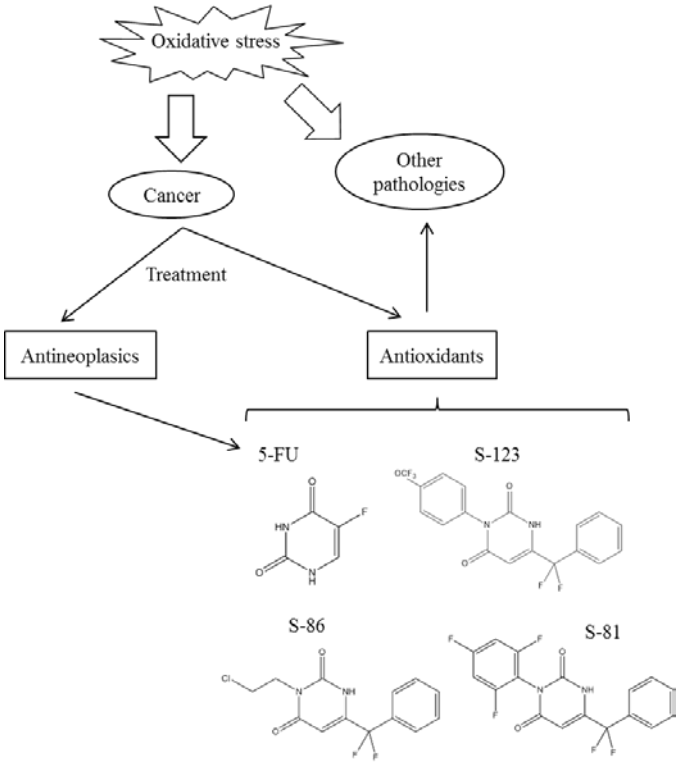
Graphical Abstract



Abstract.

The intake of antioxidants has increased in the last years in order to treat some pathologies associated with oxidative stress such as cancer, diabetes mellitus, atherosclerosis, myocardial infarction, acute pancreatitis, Parkinson's and Alzheimer's disease among others. In colorectal cancer, a widely antineoplastic drug used is the fluorinated uracil molecule 5-Fluorouracile (5-FU). The aim of this study is to assess the antioxidant capacity observed by the inhibition of lipid peroxidation by 5-FU and other fluorinated uracil derivates: 6-[Difluoro(phenyl)methyl]-3-(2,4,6-trifluorophenyl)pyrimidine-2,4(1H,3H)-dione (S-81), 3-[2-Chloroethyl]-6-[difluoro(phenyl)methyl]pyrimidine-2,4(1H,3H)-dione (S-86), 6-[Difluoro(phenyl)methyl]-3-(4-trifluoromethoxyphenyl)pyrimidine-2,4(1H,3H)-dione (S-123). The results showed a significant decrease in MDA production of 58.12% in S-86, 44.61% in S-123, 24.11% in 5-FU and 10.83% in S-81 in the sample with highest concentration (10µM). 5-FU also showed a Total Antioxidant Capacity of 0.68 Trolox Equivalent Antioxidant Capacity.

References

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