The flavonoid fraction of mandarin juice acts as anti-proliferative and anti-migratory agent toward anaplastic thyroid carcinoma cells


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Natural extracts from various species of Citrus have shown promising antitumor effects. In this study we evaluated the effects of the flavonoid fraction of mandarin (Citrus reticulata) juice (FFMJ) on both proliferation and migration of three human anaplastic thyroid carcinoma (ATC) cell lines.

FFMJ was analyzed by uHPLC to elucidate its components. Treatment of CAL-62, C-643 and 8505C cells with rising concentration of FFMJ significantly reduced cell proliferation in a concentration- and time-dependent way. Moreover, cytofluorimetric analysis showed a block of the cell cycle in the G2/M phase, accompanied by low cell mortality owed to autophagic death. Furthermore, FFMJ inhibited ATC cells migration, associated to decreased activity of the Metalloproteinase MMP-2.

These finding demonstrate that the flavonoid fraction of mandarin juice exerts antiproliferative effects on ATC cells together with a reduction of their migration properties, suggesting a promising role in the prevention or treatment of thyroid cancer.

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