

# 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 findings 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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