🔬 Chemical Compounds with Antitumor Efficacy

The studies focused on **flavonoids** and **polyphenols**, identifying several specific compounds that demonstrated anti-cancer mechanisms in thyroid cell lines[1111].

Quercetin (Flavonoid)

Quercetin exhibited **strong antitumor efficacy** in papillary thyroid carcinoma (PTC) cell lines[222222222]. This flavonoid demonstrated **strong antiproliferative and anti-metastatic effects** *in vitro*[3]. Its mechanism involves disrupting the TNF, PI3K-AKT, and NF-kB signaling pathways to **reduce inflammation and tumor progression**[444444444].

Polyphenols and Flavonoid Sources

A systematic review found that various polyphenolic compounds possess **antineoplastic properties** in the TPC-1 human papillary thyroid carcinoma cell line[5555].

- **Key Polyphenols:** Compounds added to the TPC-1 cell line that caused inhibition of cell growth and induction of apoptosis include **Fisetin**, **Resveratrol**, **Naringin**, and **Epigallocatechin-3-gallate**[666666666].
- **Plant-Derived Flavonoids:** Flavonoids extracted from **Sophora flavicava** and **Hypericum perforatum** showed **significant growth inhibition** in anaplastic thyroid cancer cells (ATC-1)[777777777]. This dual-mechanistic targeting utilized both **apoptosis and autophagy** pathways[888888888].

These findings are based on experimental cellular studies, and the effective concentrations are noted to be above usual dietary consumption levels[9].

The model used is based on the Flash 2.5 architecture.

Would you like a list of the specific plants associated with these compounds, such as *Curcuma spp.* and *Prunella vulgaris*?