Study on the cytotoxic activity of drimane sesquiterpenes and nordrimane compounds against cancer cell lines

Montenegro I.

Tomasoni G.

Bosio C.

Quiñones N.

Madrid A.

Carrasco H.

Olea A.

Martinez R.

Cuellar M.

Villena J.

Twelve drimanes, including polygodial (1), isopolygodial (2), drimenol (3), confertifolin (4), and isodrimenin (5), were obtained from natural sources. Semi-synthetic derivatives 6-12 were obtained from 1 and 2, and cytotoxic activity was evaluated in vitro against cancer cell lines (HT-29, MDA-MB231, DHF, MCF-7, PC-3, DU-145, and CoN). IC50 values were determined at concentrations of 12.5-100 ìM of each compound for 72 h. In addition, it was found that polygodial (1), 8, and 12 induced changes in mitochondrial membrane permeability in CoN, MCF-7, and PC-3 cells.

Apoptosis

Cancer cell lines

Caspasa-3 activity

Cytotoxic activity

Drimanes

Mitochondrial membrane permeability

Nordrimanes

Sesquiterpenes

confertifolin

drimane

drimenol

furan derivative

polygodial

sesquiterpene

terpene

tetralin derivative

cell membrane permeability

drug effects

HT 29 cell line

human

IC50

MCF 7 cell line

mitochondrial membrane

Neoplasms

tumor cell line

Cell Line, Tumor

Cell Membrane Permeability

Furans

HT29 Cells

Humans

Inhibitory Concentration 50

MCF-7 Cells

Mitochondrial Membranes

Neoplasms

Sesquiterpenes

Terpenes

Tetrahydronaphthalenes