In vitro Cytotoxicity of Norditerpenoid Alkaloids

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Forty-three norditerpenoid alkaloids isolated from *Aconitum*, *Delphinium* and *Consolida* species have been evaluated for their cytotoxic effects on the tumor cell lines CT26 (murine colon adenocarcinoma), SW480 (human colon adenocarcinoma), HeLa (human cervical adenocarcinoma), SkMel25 (human melanoma) and SkMel28 (human malignant melanoma) with several multidrug resistance mechanisms and the non-tumor cell line CHO (Chinese hamster ovary cells). Neoline (**5**), 8-*O*-methylcolumbianine (**6**), 1,14-diacetylcardiopetaline (**9**), 18-*O*-demethylpubescenine (**13**), 14-deacetylpubescenine (**14**), pubescenine (**15**), 14-deacetylajadine (**25**), lycoctonine (**26**), browniine (**28**), delphatine (**29**), dehydrotakaosamine (**34**), and ajadelphinine (**37**) exhibited selective cytotoxicity to cancerous *versus* non-cancerous cells. Some of these compounds had an irreversible effect on SW480 (**5**, **15**, **25**, **26**, and **34**), HeLa (**15**, **34**, and **37**) and SkMel25 (**15** and **34**) cell lines. In order to gain insights into the mechanism of irreversible cytotoxic action of these compounds we compared the cell viability by means of the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-tetrazolium bromide (MTT) and the acid phosphatase (AP) methods. Our results suggest that the effects of these compounds could be related to the inhibition of ATP production.

Key words: Norditerpenoid Alkaloids, Cytotoxicity, Tumor Cells