



CHILEAN MARINE ORGANISMES : SECONDARY METABOLITES AND ITS BIOLOGICAL ACTIVITIES

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Chile presents a large coast with cold water, where there are many endemic organisms. Our research programs are orientated to bioactive substances from mollusks, sponges and algae.

From the alga *Styopodium flabelliforme* the compounds 1-7 were isolated. The haloterpenes 8-16 were found in *Aplysia dactylomela* and *Laurencia claviformis*. The alga *Plocamium cartilagineum* collected in Chilean coast and Antarctic Peninsula content the monoterpenes 17-26. The mollusk *Siphonaria lessoni* have the polipropionate derivatives 27-31 and only 32 was obtained from the Antarctic sponge *Dendrilla membranosa*. The metabolites isolated were submitted to insecticidal, acaracide, fungicidal and herbicide screen.

Fungicidal activities of some compounds.

HOST / DISEASE	% CONTROL							
	15	16	18	19	20	21	27	28
Apple Scab <i>Ventura inaequalis</i>	0	47	12	0	0	72	0	60
Grape Downy Mildew <i>Plasmora Viticola</i>	0	0	0	0	59	17	0	0
Peanut Leaf Spot <i>Cercosporidium personatum</i>	39	30	0	0	24	0	51	0
Broad Bean Botrytis <i>Botrytis cinerea</i>	0	0	0	0	0	73	0	0
Rice Blast <i>Pyricularia oryzae</i>	0	0	0	27	0	0	0	0
Tomato Late Blight <i>Phytophthora infestans</i>	20	0	0	0	0	0	16	16
Cucumber Botrytis <i>Botrytis cinerea</i>	1	0	0	0	0	0	0	0
Wheat Foot Rot <i>Pseudocercospora herpotrichoides</i>	0	0	0	0	0	0	9	43

- Concentration of compounds : 100 ppm. - The percent control observed relative to the mean of the check population. - Standard used : Captan, flusilazole, maneb, metaxyl, chlorthalonil, vinclozolin, blastidicin-S and tricyclazole.



Herbicide activity of some compounds.

	16	27	28
Preemergency			
- Giant foxtail <i>Selaria faberi</i>	1B	0	3H
Postemergency			
- Grain sorghum <i>Sorghum bicolor</i>	0	2C	0
- Crab grass <i>Digitaria sanguinalis</i>	1B	0	0
- Barnyardgrass <i>Echinochloa crus-galli</i>	1B	0	0
- Wild oats <i>Avena fatua</i>	1B	0	0
- Cheatgrass <i>Bromus secalinus</i>	1B	0	0

B : Burn H : Formative (Growth distortion) effect. C : Chlorosis/necrosis Response ratings are based on a scale of 0 to 10, where 0 = no effect and 10 = complete control. The concentration used were 1 kg/Ha.

Insecticidal/acaricidal activities of some compounds.

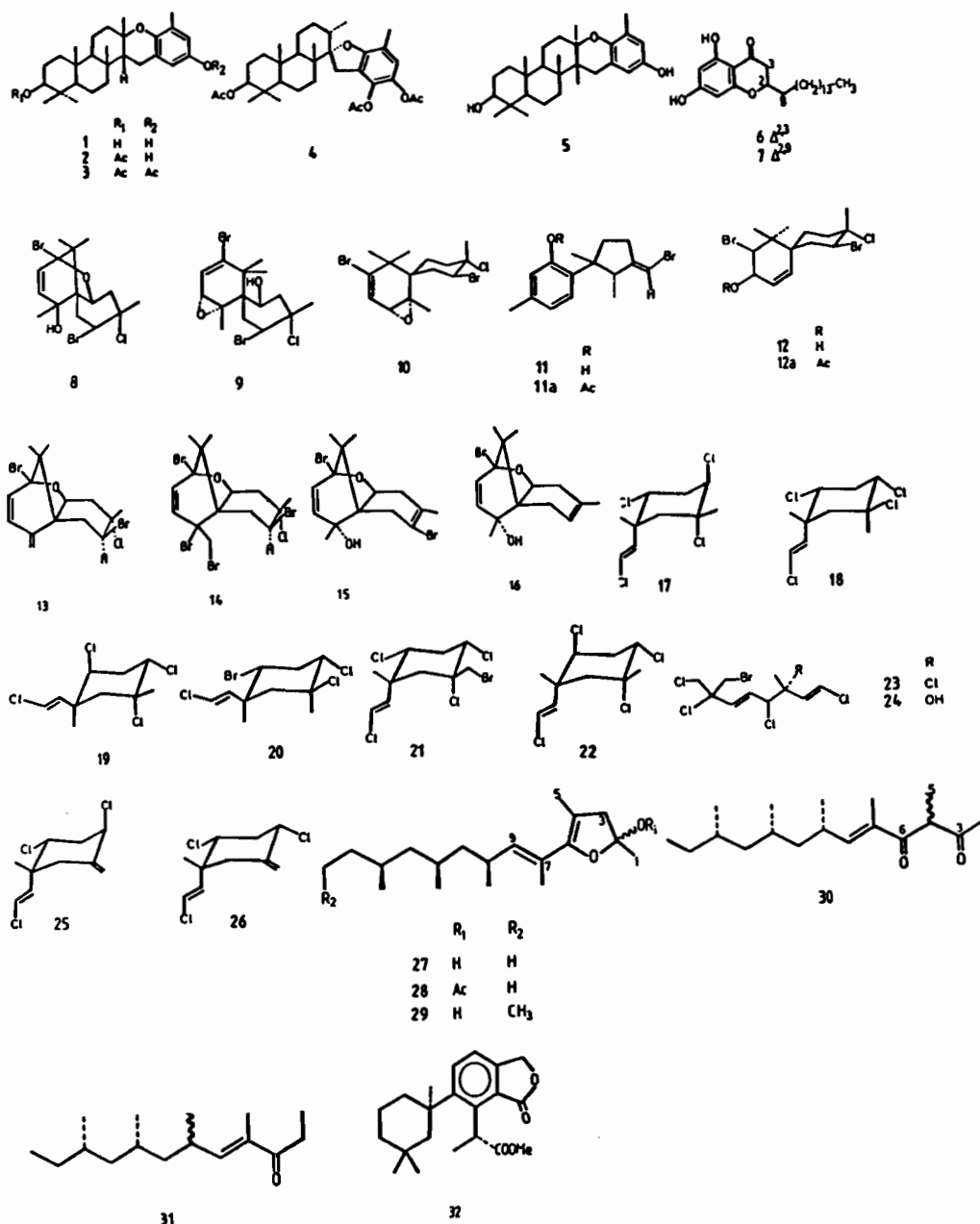
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COMPOUND	ppm	FAW	DET	SUP	TBW	ECB	SCRW	TSSM	BW	ALH	BBA
1	500	80	0	0				14			22
2	1000	60	0	0	0						23
3	1000	60	52	0		0					40
4	1000	40	50	12			20				32
8	1000	40	20	0				12			1
9	1000	40	0	28	0			100			
10	1000	0					40	100	40	13	79
	250							99			43
	2,5							53			12
13	1000	20	0	0			0	8			27
14	1000	0	12	1	30	0	0	92	20	6	22
15											
16	1000	20	0	0			40	10			28
17	1000	40	46	31	80	0	0	9	0	20	12
18	1000	20	12	0	0	0	0	7	20	20	16
19	1000	0	56	7	20	0	0	27	20	0	14
20	1000	40	43	0	0	0	20	42	0	0	79
21	1000	20	94	48	10	40	100	100	0	80	100
	250		3	5			40	14		83	59
	100									57	
22	1000	40	46	31	80	0	0	9	0	0	12
23	1000	0	28	35	30	0	60	7	0	0	24
27	1000	20	0	0	0	0	0	15	0	0	28
28	1000	40	0	0	0	0	0	68	0	0	33



Results are reported in scale 0 to 100 percent ; O : no control ; 100 : complete ; Species : FAW : Fall Armyworm mortality (*Spodoptera frugiperda*) ; Antifeed DET : Fall Armyworm, Antifeedant Test-Deterrence ; Antifeed SUP : Fall Armyworm, Antifeedant Test-suppression. TBW : Tobacco Budworm mortality (*Heliothis virescens*) ; ECB : European corn borer mortality (*Ostrinia nubilalis*) ; SCRW : Southern corn rootworm (*Diabrotica undecimnotata*) ; TSSM : Twospotted spider mite mortality (*Tetranychus urticae*) ; BW : Bolle weevil mortality (*Anthonomus grandis*) ; ALH : Aster leafhopper mortality (*Macrostelus pacifrons*) ; BBA : Black bean aphid mortality (*Aphis fabae*).

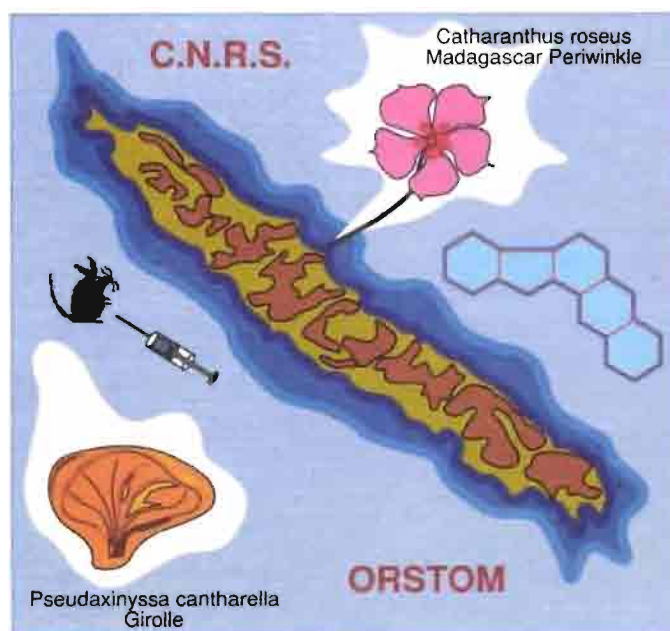
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