

List of Figures

1.1	Categories to chemical messenger-substance	4
1.2	Structure of sex pheromone (bombykol) from <i>Bombyx mori</i>	5
1.3	Navenones A, B and C (from Fenical et al., 1980)	7
1.4	Structure of anthopleurine	8
1.5	The alarm substance cell of minnow (from Agosta, 1992)	11
1.6	The structure of olfactory chamber of minnow (from Agosta, 1992)	13
1.7	Structure of hypoxanthine-(3N)-oxide	16
2.1a	The normal behaviour of the fish	26
2.1b	Feeding	26
2.1c	Introducing the alarm substance after 10 seconds intervals of feeding	27
2.1d	Fright reaction with the positive reaction1 (+ +)	27
3.1	First chromatogram of biologically extract sample	47
3.2	Chromatogram of fraction 3.1	50
3.3	UV spectra of biologically active fraction 3.1.1	52
3.4	Third chromatography of fraction 3.1.1	52
3.5	GFC chromatogram of fraction 3.1.1.1	54
3.6	UV spectra of fraction 3.1.1.1, fraction G1 and G2 from GFC	56
3.7	Re-chromatogram of fraction G2	58
3.8	Typical chromatogram of pheromone-containing Sample	59
3.9	UV spectra of active sample at different pH values	62
3.10	Structure of isoxanthopterin and its derivatives	66
3.11	¹ H NMR of active substance	68
3.12	Proposed structures	68
3.13	¹³ C NMR of active substance	70
3.14	¹ H- ¹³ C-COSY	71
3.15	Positive ions mass spectrum of active substance	73
3.16	Negative ions mass spectrum of active substance	74
3.17	Negative-ion fragments of ichthyopterin (7-hydroxybiopterin)	75
3.18	Structure of inosine and adenosine	81
4.1	Dissociation of 7-hydroxybiopterin and UV-maximum	90
4.2	Probable bio-pathways of biopterin	92
4.3	Configurations of diastereomers	93

4.4	Structure of L-erythro-biopterin	93
4.5	Structure of L-erythro-7-hydroxybiopterin	94
4.6	Structure of 6-carboxyisoxanthopterin	95