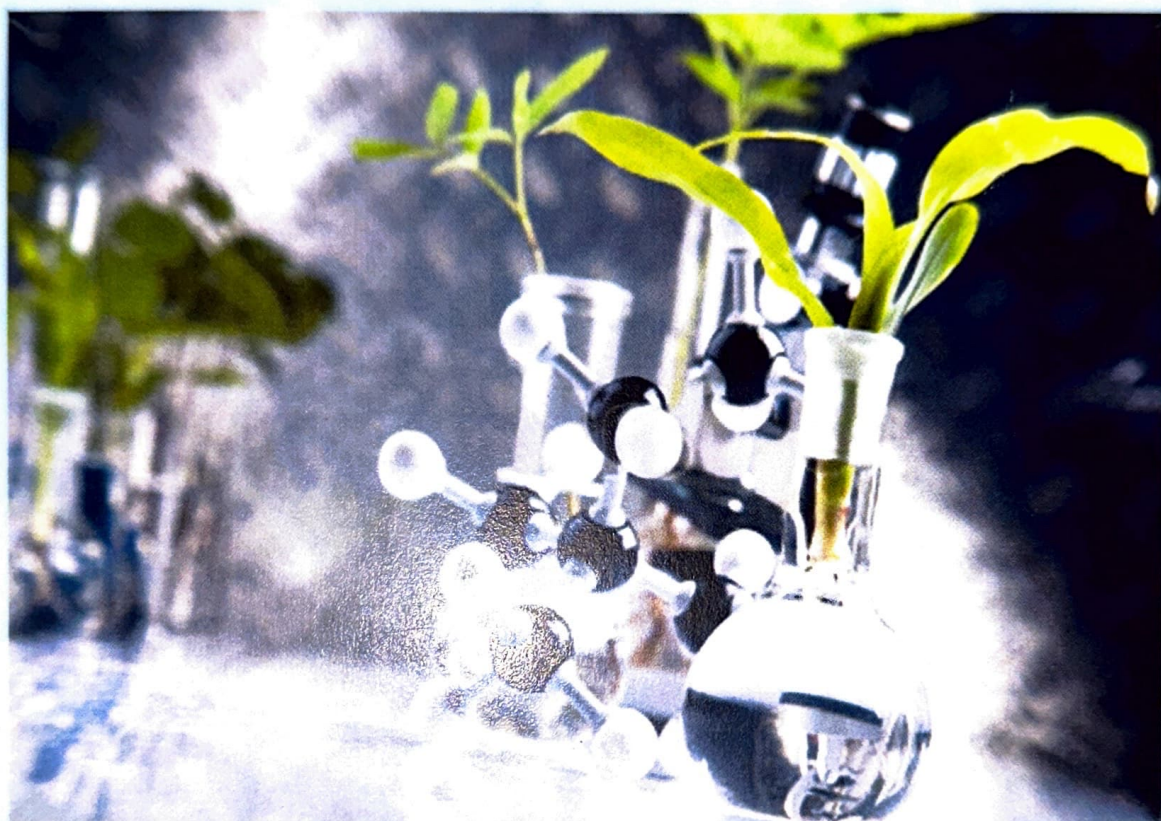


**S.R.GAJIEVA, T.I.ALIYEVA,  
A.G.GUSEYINLI, U.N.RUSTAMOVA,  
Z.T.VALIYEVA, A.A.SAMADOVA,  
J.Z.SAMADOV**



**PRACTICAL WORK  
ON APPLIED  
ECOLOGY**

## CONTENT

Preface .....	3
Introduction.....	8
Intoduction.....	10
<b>Chapter I. Ecological importance and pollution of the atmosphere.....</b>	<b>14</b>
Greenhouse effect .....	16
Carbon dioxide .....	17
Nitrogen monoxide.....	18
Application of chemical methods in the atmospheric air protection.....	21
Atmospheric air analysis.....	21
<i>Laboratory work No 1</i> Determination of CO <sub>2</sub> , CO in air. Express method for determination of carbon dioxide in the air.....	27
<i>Laboratory work No 2</i> Determination of NO, NO <sub>2</sub> , chlorine and ammonia in the air .....	31
Analysis of the air environment of various objects. Organic atmosphere pollutants .....	32
<i>Laboratory work No 3</i> Determination of formaldehyde, benzene, phenol, toluene in the air .....	42
<i>Laboratory work No 4</i> Determination of phenol in the air space, processed by the polymers.....	43
<i>Laboratory work No 5</i> Determination of acidity of flour and flour products. Determination of acidity in flour .....	45
<i>Laboratory work № 6</i> Determination of acidity of milk and milk products.....	47

<b>Chapter II. Study of water properties in natural water bodies.....</b>	<b>49</b>
2.1. Structure of the hydrosphere.	
Total supply of water in the biosphere.....	49
2.2. Basic properties of water.....	52
Water Density.....	52
Water heat capacity.....	53
Water salinity.....	53
Amount of water-dissolved oxygen and carbon dioxide.....	55
2.3. Water in the atmosphere.....	55
2.4. Main hydrosphere pollutants.....	56
Atmospheric precipitations.....	56
Domestic wastewater.....	57
Industrial wastewater.....	57
Petroleum and petroleum products.....	57
Agricultural wastewater.....	58
2.5. Pollution of water bodies in the Republic of Azerbaijan.....	59
2.6. Transparency of natural waters.....	63
Express test methods in the analysis of environmental compartments.....	63
Determination of physical and chemical parameters of water.....	64
Electrical conductivity.....	64
Temperature.....	66
pH (hydrogen-ion concentration) value.....	66
Oxidation-reduction potential (Redox).....	68
Dissolved oxygen.....	69
<i>Laboratory work No 7</i>	
Determination of physical and chemical parameters of the water.....	72
<i>Laboratory work No 8</i>	
Determination of water dry matter- residue.....	73

2.7. Water analysis .....	75
<i>Laboratory work No 9</i>	
Determination of carbonate, bicarbonate, chloride and phosphate ions in mineral and natural waters .....	77
<i>Laboratory work No 10</i>	
Determination of phenol in natural and wastewaters.....	74
<i>Laboratory work No 11</i>	
Spectrophotometric determination of copper $\text{Cu}^{2+}$ in natural and mineral waters.....	82
<b>Chapter III. Lithosphere and soil cover.....</b>	<b>86</b>
3.1. Lithosphere and its structure.....	86
3.2. Soil contamination sources .....	86
Preparation of samples in the laboratory .....	88
Soil analysis.....	88
3.2.1. Soil pollution with nitrates and nitrites.....	89
Determination of the $\text{NO}_2^-$ or $\text{NO}_3^-$ volume .....	95
<i>Laboratory work No 12</i>	
Spectrophotometric determination of the amount of carbonate, bicarbonate, phosphate ions in the soil samples .....	96
<i>Laboratory work No 13</i>	
Spectrophotometric determination of the amount of $\text{NH}_4^+$ , $\text{NO}_3^-$ , $\text{NO}_2^-$ ions in the soil samples.....	97
3.2.3. Pollution of soils by heavy metals .....	97
<i>Laboratory work No 14</i>	
Spectrophotometric determination of the amount of $\text{NH}_4^+$ , $\text{NO}_3^-$ , $\text{NO}_2^-$ ions in fruits and vegetables .....	103
<i>Laboratory work No 15</i>	
Spectrophotometric determination of the amount of Fe (III) and Cu (II) ions in fruits and vegetables.....	104
References.....	106