Thus, IFN-α_2 fragments 43-49 and 121-125 have significant effects on the recovery of memory traces, though they do not have greater antiamnesiac activity than arginine-vasopressin; the peptides significantly disturb the production of memory engrams in non-amnesiac rats. The peptides differ from arginine-vasopressin in that i.v. administration does not significantly alter BP or HR.

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ANTIINFLAMMATORY ACTIVITY OF DIPHENYLDI[AROYLOXY]SILANES

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UDC 615.276:547.77.012.1

The identification of antiinflammatory drugs of low toxicity is a continuing task for pharmaceutical chemists [1, 2].

We have now examined the antiinflammatory activity of some diphenyldi(aroyloxy) silanes (I-XIV), obtained by reacting benzoic acids with diphenyldichlorosilane.

$$[(X)C_6H_4C(O)O]_2SiPh_2 \text{ (I—XIV)}$$

X=2-Cl(I), 4-Cl(II), 2,2-Cl_2(III), 2-I(IV), 3-I(V), 4-I(VI), 2-Br(VII), 4-Br(VIII), 2,4-Br_2(IX), 2-NO_2(X), 3-NO_2(XI), 2,4-NO_2(XII), 4-OH(XIII), 2,4-$(OH)_2$(XIV).

The purity of the products was checked by TLC on grade II alumina in the solvent system toluene—acetic acid. The structures of the compounds were established by their IR spectra and elemental analyses.

For example, the IR spectra of (I-XIV) showed absorption for the carbonyl group (1710-1750 cm^{-1}) and for the benzene ring (1500-1600 cm^{-1}).

EXPERIMENTAL (CHEMISTRY)

IR spectra were obtained on a UR-20 spectrophotometer in KBr disks. The elemental analyses were in agreement with the calculated values.

Diphenyldi(o-chlorobenzoyloxy)silane (I). A mixture of 3.12 g (0.01 mole) of o-chlorobenzoic acid and 2.53 ml of diphenyldichlorosilane in 100 ml of benzene was stirred at ~20°C for 6 h. The product was then extracted with ether, the solvent removed, and the material purified by TLC on grade II alumina in the system toluene—acetic acid (4:10) (Table 1).

Tashkent Institute of Medicine. Translated from Khimiko-farmatsevticheskii Zhurnal, Vol. 24, No. 6, pp. 33-34, June, 1990. Original article submitted August 1, 1989.

0091-150X/90/2406-0422$12.50

TABLE 1. Properties of Diphenyldi(aroyloxy)-silanes (I-XIV)

Compound	Yield, %	mp, °C	R_f	Empirical formula
I	83,2	90—91	0,58	$C_{26}H_{18}O_4Cl_2Si$
II	87,4	99—100	0,56	$C_{26}H_{18}O_4Cl_2Si$
III	82,1	105—106	0,61	$C_{26}H_{16}O_4Cl_4Si$
IV	90,5	88—89	0,54	$C_{26}H_{18}O_4I_2Si$
V	89,3	143—144	0,60	$C_{26}H_{18}O_4I_2Si$
VI	88,7	145—146	0,62	$C_{26}H_{18}O_4I_2Si$
VII	91,3	91—92	0,55	$C_{26}H_{18}O_4Br_2Si$
VIII	90,7	110—111	0,64	$C_{26}H_{18}O_4Br_2Si$
IX	89,7	132—133	0,71	$C_{26}H_{16}O_4Br_4Si$
X	88,3	98—99	0,56	$C_{26}H_{18}O_8N_2Si$
XI	80,1	120—121	0,64	$C_{26}H_{18}O_8N_2Si$
XII	80,5	94—95	0,59	$C_{26}H_{16}O_{12}N_4Si$
XIII	83,4	165—166	0,69	$C_{26}H_{20}O_6Si$
XIV	90,1	156—157	0,60	$C_{26}H_{22}O_8Si$

TABLE 2. Antiinflammatory Activity (%) of Diphenyldi(aroyloxy)silanes (I-XI)

Compound	Dose, mg/kg		
	50	100	150
I	30,2	34,1	39,3
II	29,7	33,9	38,5
III	28,2	33,4	40,3
IV	25,1	32	35,4
V	24,3	29,4	35,2
VI	18,5	20,5	31,5
VII	17,9	21,5	20,5
VIII	18,4	20,1	24,2
IX	21,3	22,4	25,7
X	24,3	28,3	34,2
XI	21,4	24,2	26,2
Control (butadione)		26,2	

Compounds (II-XIV) were obtained similarly.

EXPERIMENTAL (BIOLOGY)

The compounds obtained were tested for antiinflammatory activity and toxicity.

Activity was examined in model arthritis induced by histamine. This was administered subplantarly into the right rear paw of rats in a dose of 0.1 ml of 0.1% solution. The volume of the rat paws was measured by oncometry before administration of the test compounds, then hourly for 5 h, and 24 h after administration. The greatest increase in the volume of the rat paws was seen after 90 min, edema then subsiding, and after 24 h the paw volume had returned almost to normal.

The test compounds, in doses of 25, 50, 100, and 150 mg/kg, were introduced orally via a probe 15-20 min before induction of edema. In all, 150 white rats of both sexes of a mixed population weighing 18-23 g were used in these tests.

The results obtained show that all the test compounds possess slight antiinflammatory activity in a dose of 25 mg/kg, this activity increasing with increased dose rates (Table 2).

In the chlorinated compounds, activity varied in the order: o-Cl > p-Cl > 2,4-Cl_2, in the iodo-compounds, p-I < m-I < o-I, and in the bromo-compounds, o-Br > p-Br > 2,4-Br_2. Comparison of the activities of the chloro-, bromo-, and iodo-compounds shows that activity varies in the order: Cl > I > Br, i.e. the highest activity is shown by the chloro-compounds, especially the 2,4-Cl_2 compounds (40.3%). Replacement of halogen by the hydroxy group reduced the activity to 34.2%. The activity of the compounds was compared with that of the well-known antiinflammatory drug butadione. This drug was employed in a dose at which, according to the literature, it shows its greatest activity, and in a dose of 100 mg/kg it reduced inflammation by 26.2%.

The greatest activity amongst the test compounds was shown by diphenyldi(2,4-dichlorobenzoyloxy)silane, which in a dose of 150 mg/kg reduced inflammation by 40.3%.

Toxicities were determined in white mice of both sexes weighing 18-23 g. The compounds were administered subcutaneously as 1-10% oily solutions. Each dose was tested in at least six animals. The volume of solution adminstered did not exceed 1 ml.

The median lethal doses (LD_{50}) were determined by the method of Litchfield and Wilcoxon, $p = 0.05$. All the test compounds were found to be of low toxicity, and did not cause the deaths of the animals at doses as high as 2800 mg/kg, whereas the LD_{50} value of butadione is 430 mg/kg.

All the test compounds therefore show antiinflammatory activity and are of low toxicity. They are of definite pharmacological interest.

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NEW WATER-SOLUBLE POLYMERS HAVING ANTIMICROBIAL ACTIVITY

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UDC 615.281:678.86].07

In recent years an increase has been noted in medical practice in the number of inducer strains of purulent-inflammatory diseases, which are resistant to antibiotics. The appearance of new more effective antibiotics with a wide spectrum of activity is often accompanied by the occurrence of various medical complications in patients and an increase in the individual intolerance. Therefore, the search for compounds having antimicrobial action continues to remain one of the necessary tasks in the fight against purulent pathologic diseases.

One of the possible paths of producing such compounds appears to us to be the synthesis of new high-molecular weight, relatively harmless water-soluble compounds with a wide spectrum of antimicrobial activity. We studied the antimicrobial activity of a new hemostatic preparation Feracryl (Fe-PAA, I), which is an iron-containing salt of polyacrylic acid, and of bimetallic complexes with nickel, cobalt and copper synthesized from it.

The method of synthesis of I with various contents of iron is given in [2]. The bimetallic complexes were obtained by modification of I by Co, Ni, and Cu salts in aqueous solutions.

EXPERIMENTAL

In all the syntheses, the starting compound I had molecular weight (M), equal to $3.67 \cdot 10^6$ and an iron concentration of 0.1067% (by weight). A weighed sample of I was dissolved in 200 ml of water and an aqueous solution of an inorganic salt MA, where M is Co, Ni, Cu; A is an anion, was added with vigorous stirring at a constant temperature. The reaction was carried out for 4 h at 50-60°C. The polymer was precipitated by a 1:1 acetone-ethyl acetate mixture. The concentration of the metals in the polymers was determined colorimetrically by a method described in [1]. The starting ratios of I:MA, the time of reaction and the main characteristics of the polymers are given in Table 1.

The bimetallic complexes M—I are in the form of colored nontransparent plates, which are readily soluble in water. An exception are the fourth and sixth Cu—I complexes, which were obtained in the presence of alkali; these polymers have a limited solubility in water.

The acute toxicity parameters during an intraperitoneal administration of the compounds to nonpedigree white mice of both sexes each weighing 20-24 g, were determined by a high-speed Kerber method [4].

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Translated from Khimiko-farmatsevticheskii Zhurnal, Vol. 24, No. 6, pp. 34-36, June, 1990. Original article submitted May 25, 1989.

 0091-150X/90/2406-0424$12.50