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TERENT'EV, A. P.

Sulfonation of aldehydes and ketones. A. P. Terent'ev and L. A. Yanovskaya (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 75, 235-7(1950). —Addn. of an aldehyde or ketone with strong cooling to dioxane-SO_3 in $(CH_2Cl)_2$, letting stand overnight, treatment with $BaCO_3$, evapn., extn. with hot H_2O, and pptn. of the concd. ext. with $EtOH$-Et_2O gave Ba salts of mono- or disulfonic acids, depending on the ratio of reagents used. Except for AcPh, all ketones gave sol. Ba sulfonates, usually monohydrates, as did all aldehydes, the derivs. of which also give the Ag mirror test, reduce Fehling soln., but give no color with fuchsin-SO_2 and do not form oximes, phenylhydrazones, or semicarbazons. The location of SO_3H was shown, by oxidation, to be in the α-position. The following *sulfonic acids* (as Ba salts; yields given) were prepd.: *AcH monoacid* 39 and *diacid* 80; *EtCHO monoacid* 55; *PrCHO monoacid* 61 and *diacid* 78; *iso-PrCHO monoacid* 75; *iso-BuCHO monoacid* 78; C_4H_9CHO *monoacid* 65, $C_5H_{11}CHO$ *monoacid* 60; $C_6H_{13}CHO$ *monoacid* 43, and *diacid* 34; *PhCH₂CHO monoacid* 57; Me_2CO *monoacid* 53 and *diacid* 100; Pr_2CO *monoacid* 95, and *diacid* 100; *iso-Pr_2CO monoacid* 90; *AcPh monoacid* 90; *cyclohexanone monoacid* 84. (Note by authors: after completion of this work there appeared the report of Bruce and Alfieri (C.A. 45, 15085), covering similar preps. but with lower yields and different technique).

G. M. Kosolapoff

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Reaction of formamide with carbonyl compounds in the presence of nickel catalyst. A. N. Kost, A. P. Terent'ev, and G. A. Shvekhgeimer (Moscow State Univ.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1951, 150-60.—The reaction of HCO_2NH_2 with carbonyl compds. is accelerated by the presence of hydrogenation catalysts (Ni, Co, Pt, Pd, etc.), and the limit of active temp. is lowered by 20-80°. Particularly effective are such substances in reactions of naphthenic compds. The use of catalysts improves the yield of primary amines. The results indicate that the mechanism of the reaction is such the H_2O-removing substances have little bearing on it and the true mechanism may proceed by addn. of $HOCNH_2$ to R_2CO in the sense of addn. of the HOC and NH_2 (or NR_2) fragments across the CO link of the carbonyl; the resulting $R_2C(NH_2$ or $NR_2)OCHO$ then decomp. into CO_2 and the amine R_2CHNH_2 (or NR_2). The above mentioned catalysts give 2-5% better yields of RNH_2 at 110-30° in comparison with the 180° required without a catalyst. The Ni catalyst was prepd. by treating Ni carbonate with excess HCO_2H 10-12 hrs. at room temp., filtering the Ni formate, and thermally decompg. the requisite amt. just before use after moistening with a little HCO_2H; the decompn. was done by an ordinary burner. Typical reactions with HCO_2NH_2 (I) (from the reaction of 82% HCO_2H with $(NH_4)_2CO_3$, followed by concn.) follow. Heating 60 g. I, 1 g. Ni catalyst, and 24.5 g. MeEtCO 60 hrs. at 90° and 6 hrs. at 160°, then hydrolysis by boiling 2 hrs. with 100 ml. concd. HCl, gave 51.5% *3-aminobutane*, b_{760} 61-3°; *picrate*, m. 137-8°. Similarly 60 g. I and 30 g. MePrCO with 1 g. Ni gave 43.5% *2-aminopentane*, b_{760} 88-91°; *HCl salt*, m. 168° (from EtOH). To 60 g. I and 1 g. Ni in a Claisen flask heated to 130° was slowly (0.5 hr.) added 25 g. EtPrCO and the mixt. heated 7 hrs. at 125-30° with recycling of the distd. ketone, yielding 32.8% *3-aminohexane*, b_{760} 118-22°; *HCl salt*, m. 225°. Similarly MeAmCO gave 55.1% *2-aminoheptane*, b_{760} 140-3°; *HCl salt*, m. 133°; heating at 120-5° 4 hrs. gave a 49% yield. Similarly Pr_2CO after 8 hrs. at 140° gave 63.8% *4-aminoheptane*, b_{760} 138-41°; *HCl salt*, m. 240-1° (from EtOH); at 130-5° the yield is 64.4%, when the proportion of the ketone is higher. I (75 g.) and 48 g. $MeCOC_6H_{12}$ gave in 2 hrs. at 155-60° 59.4% *2-aminooctane*, b_{760} 164-7°; *HCl salt*, m. 83.5° (from EtOH). Heating 120 g. I, 2 g. Ni, and 34.2 g. iso-Pr_2CO

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Microdetermination of active hydrogen by means of ether solutions of methylmagnesium iodide (Chugaev reagent).

A. P. Terent'ev and A. I. Kireeva (Moscow State Univ.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1951, 172-8.—The reaction of active H with MeMgI is conducted in a gas volumetric app. of substantially conventional type, in which the air and the resulting CH_4 are forced from the app. by means of Et_2O vapors generated by slight warming of the reaction vessel. The latter is a flask with a pocket side-arm which carries the sample, mixed with the MeMgI in the main body of the flask by means of tilting. The Et_2O vapor used for the gas displacement is absorbed by means of 1:1 aq. EtOH in the primary gas buret, and the CH_4 detn. is made in a conventional azotometer suitable for micro work. Complete directions for a typical run are given. Results of over 100 detns. on a variety of compds. (acids, hydroxy compounds, and amines) are given with sample sizes of about 3-4 mg. In case of primary amines, high temp. (about 100°) is generally needed for reaction of both active H atoms. The technique used permits greater than normal latitude concerning dry app., as the Et_2O boiling step automatically eliminates residual H_2O in the solvents, glassware, etc. The most satisfactory generally usable solvent is pure pyridine, dried with BaO and distd. (b. 115-16°), which may be used in a ratio such as 1:4 with the Et_2O of the RMgX. Picoline may be used satisfactorily also, and no correction for "extra" CH_4 is needed since actual quant. expts. proved that no action of the CH_4 takes place. The use of pyridine is most desirable for substances that have low soly. in the more usual solvents. G. M. Kosolapoff

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Salicylalamines in analysis. II. Determination of copper and nickel with salicylalamine. A. P. Terent'ev and E. G. Rukhadze (Moscow State Univ.). *Zhur. Anal. Khim.* 6, 186-90(1951); *cf. Vestnik Moskov. Univ.* 1949, No. 2, 75; cf. C. I. 44, 9871. Cu and Ni were pptd. with salicylalamine by a procedure somewhat different from that of Duke (C. I. 39, 6734). The difference consists in adding the reagents separately, namely, first a 2% alc. soln. of salicylaldehyde and then a 20% aq. soln. of NH_4OH. By this procedure the ppt. is cryst. and filters readily. Cu salicylalamine, m. 148°, and its compn. is stable at 100-120°. Its soly. at 19-29° is 0.94 mg. per 100 g. of soln. It is readily sol. in pyridine, acetone, dichloroethane, $CHCl_3$, and AmOH, and on heating in EtOH. It is very slightly sol. in MeOH, ethyl acetate, CCl_4, heptane, ligroine, and benzene. Concd. NaOH and HCl decompose the ppt. Pptn. of Cu salicylalamine begins at pH 7.5 and is complete at pH 9-10. Sensitivity of this method is 0.002 mg. of Cu^{++} per 1 ml. The Ni salt decomp. above 260° without melting; its compn. is const. at 100-160°, and corresponds to $C_{14}H_{12}O_2N_2Ni$. The soly. of the Ni salt is 0.86 mg. in 100 g. of soln. at 18-29°. It is sol. in pyridine and acetone, and very slightly sol. in ether, $CHCl_3$, CCl_4, ligroine, benzene, and MeOH. It is decompd. by concd. NaOH, NH_4OH, and HCl. Pptn. of the Ni salt begins at pH 8 and is complete at pH 9. The sensitivity is 0.0011 mg. of Ni^{++} in 1 ml. of soln. Salicylalamine ppts. Pb^{++} (dark brown), V^{++} (bright red), UO_2^{++} (yellow), La^{+++} (bright yellow), and others. It does not ppt. Co^{++}, Hg^{++}, Zn^{++}, Cd^{++}, and Mn^{++}.

M. Hosch

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1606. Salicylidene-amines in analysis. III. Physico-chemical and analytical parameters in the series of salicylidene-amine homologues. A. P. Terentev and E. G. Rukhadze (*J. anal. Chem. USSR*, 1951, 6, 303—307; cf. C., 1950, 490; 1951, 302).—Properties of salicylidene-alkylamines and the possibility of using them for determination of Cu and Ni have been studied. The solubilities of the amines and also the solubilities of the Cu and Ni complexes decrease as the homologous series is ascended. The methyl, ethyl, and propyl homologues can replace salicylidene-amine in the method for determining Cu and Ni (C., 1951, 302) but show no advantages over it.

G. S. Smith.

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Polarography of some sulfo derivatives of conjugated diene hydrocarbons. A. P. Terent'ev, L. A. Yanovskaya, and A. V. Dombrovskii. *Vestnik Moskov. Univ.* 6, No. 2, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 1, 93-5(1951).—1-Divinylsulfonic acid polarographed as the Ba salt gave only one wave with half-wave oxidation potential of 0.023 v. This was the limiting value for the location of the sulfo group (terminal) and the absence of other waves confirmed the purity of the specimen. Hydrogenated isoprenesulfonic acid oxidized with $KMnO_4$ gave MeEtCO, indicating the structure of 2-methyl-1,3-butadiene-1-sulfonic acid; polarography of its Ba salt gave 2 waves with half-wave potentials of 0.021 and 0.031 v. Probably, the first was caused by the 1-sulfonic acid, the location of the other being unknown at this time. The 2,3-dimethylbutadienesulfonic acid on oxidation gave diacetyl; polarography gave 1 wave with half-wave potential 0.017 v. showing it to be the 1-sulfonic acid. Cyclopentadienesulfonic acid gave 1 wave with half-wave potential 0.016 v. G. M. Kosolapoff

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TERENT'YEV, A.P.; KOST, A.N.; GURVICH, S.M.

Condensation of acrylonitrile with some dienes. Vestnik Moskov. Univ. 6, No.12, Ser. Fiz.-Mat. i Estestven. Nauk No.8, 79-83 '51. (CA 47 no.14:6877 '53)

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Syntheses with acrylonitrile. XII. Preparation of some analogs of spermine and spermidine. A. P. Terent'ev, A. N. Kost, and K. I. Chursina (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 268-70(1951); cf. *C.A.* 44, 9349*f*; 45, 5622*e*.—To 14.8 g. $H_2N(CH_2)_3NH_2$ was added with cooling 10.6 g. CH_2:CHCN and the soln. warmed slowly to 40-5°, then 2 hrs. on a steam bath, and rapidly distd. in a N atm. to give 80% *$H_2N(CH_2)_3NH$-CH_2CH_2CN*, b_3 200-10°, and about 3 g. dicyanoethylation product, b_3 230-70°; when 2 moles CH_2:CHCN is used, 70% mono-(I) and 23% *dicyanoethylation* (II) products are formed. I, b_4 203-6°, b_4 214-18°, n_D^{20} 1.4702, d_4^{20} 0.9725, forms a cryst. *di-HCl salt*, darkening at 180°; II, *N,N'-bis(2-cyanoethyl)-1,3-propanediamine*, b_4 263-5°, b_4 271.5°, n_D^{20} 1.4826, d_4^{20} 1.0168. Reduction of 12.7 g. I by 15 g. Na added to a soln. in 250 ml. BuOH at 100° and steam distn. (125-35°) gave 82% *1,5-diazacyclooctane-2HCl.H_2O*, m. 270° (from aq. MeOH); *dipicrate monohydrate*, decomp. 226°. Similar reduction of II gave 72% *N,N'-bis(3-aminopropyl)ethylenediamine - 4HCl.H_2O*, darkening at 150°, a *thermine homolog*.

G. M. Kosolapoff

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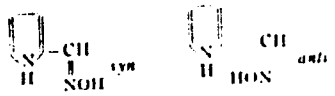
Stereoisomerism of oximes of 2-pyrrolecarboxaldehyde and 2-pyrryl ketones. A. P. Terent'ev and A. N. Makarova (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 270-8(1951).—*2-Pyrrolecarboxylic acid*, m. 204°, from NC_4H_4MgI, with $SOCl_2$ yielded 60% of the chloride, m. 90°, which with $MeNH_2$ gave 60% *N-methylamide*, m. 151° (from C_6H_6). HCO_2CH on NC_4H_4MgI gave *2-pyrrolecarboxaldehyde*, which, warmed with $NH_2(OH)Cl$ in the presence of Na_2CO_3 gave the *oxime* (I), m. 164° (from $CHCl_3$); if heating is omitted the oxime slowly forms at room temp. and the 1st crop m. 164°, as above, but there also seps. a 2nd crop of larger crystals, m. 70-1° (II), an unstable stereoisomer of I, which on heating above the m.p. slowly changes to I; the same occurs on crystn. from hot H_2O or EtOH, by the action of HCl, irradiation with ultraviolet light, or on standing in the open air. I does not form a ppt. with Cu acetate in dil. soln., merely giving a green color; in concd. solns. it forms a voluminous ppt. of a green *Cu salt*, contg. 1 Cu atom/mole oxime, sol. in dil. acids and NH_4OH; this salt is not an inner complex type and must be that of the *anti-form* of the *oxime*. II with Cu acetate immediately gives a brown ppt. of a *Cu salt*, insol. in dil. acids or NH_4OH, but sol. in pyridine; it has 1 Cu atom/2 moles oxime and must be the inner chelated complex salt of the *syn-form*. When *2-acetylpyrrole oxime*



is prepd. in hot MeOH [Ciamician and Dennstedt, *Gazz. chim. ital.* 13, 445(1883)] it m. 145°, if heating extends to hrs. the product has a wide m.p., 85-90°, isolated and crystd. from EtOH and H_2O, it yields 2 *products*: needles (III), m. 145°, and a micropowder (IV), m. 82°. III with Cu acetate gives a ppt. only after standing 2 days; this has 1 Cu atom/mole oxime and is ionic in nature, being sol. in acids and NH_4OH. Hence III is the *anti form*

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IV gives an immediate ppt. of brown *Cu salt*, having 1 Cu atom/2 moles oxime, insol. in dil. acids or NH_4OH, sol. in pyridine; hence, this is the *syn form*. Both forms are of approx. equal stability in this case, III giving IV on heating to 100°, while IV changes to III on treatment with dry HCl or ultraviolet irradiation. Beckmann rearrangement of III with PCl_5 in ice-cooled Et_2O gave *N-methyl-2-pyrrolecarboxamide*, m. 151-2°, identical with an authentic sample (above); IV also gave this amide, indicating isomerization of the syn to the anti form under the action of PCl_5. Boiling *2-butyrylpyrrole* 8 hrs. with $NH_2(OH)Cl$ and Na_2CO_3 in H_2O gave the *oxime*, m. 119°, a very stable substance; no other form was isolated under any conditions. This oxime readily gives the *Cu salt* having 1 Cu atom/2 moles oxime, thus indicating it is the syn form. *2-Benzoylpyrrole* gave an *oxime* only after boiling 60 hrs.; this m. 147° and gave a *Cu salt* only on prolonged shaking, the salt being of ionic type, with 1 Cu atom/mole oxime, indicating it is the *anti-form*. If 0.2 g. 2-benzoylpyrrole is boiled 30 hrs. with 0.2 g. $NH_2(OH)Cl$ and 1.1 g. Na_2CO_3 in H_2O, the oxime m. 60-120°, and on crystn. from aq. EtOH gives 2 oximes: (V), m. 147° as above, and (VI), m. 58°, which at 150-60° (and also same with dry HCl) forms V; VI gives a brown inner complex Cu salt, indicating it is the *syn-form*. G. M. K.

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Sulfonation and sulfonic acids of acidophobic substances. XIII. Sulfonation of cyclopentadiene. A. P. Terent'ev and A. V. Dombrovskii (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 278-80(1951); cf. *C.A.* 45, 2802h. Pyridine-SO_3 (32 g.), 25 ml. $(CH_2Cl)_2$, and 6.6 g. cyclopentadiene, b. 39.5°, d_4^{20} 0.8047, n_D^{20} 1.4473, heated in a N atm. in a sealed tube 6 hrs. at 50-80°, treated with 40 ml. NH_4OH, washed with C_6H_6, and neutralized with 65 g. $Ba(OH)_2$, gave on filtration and evapn., followed by addn. of MeOH, 42% of a *Ba monosulfonate*, $Ba(C_5H_5O_3S)_2$; *K salt*, prepd. by metathesis with K_2SO_4. Oxidation of the K salt with $KMnO_4$ gave Ba oxalate and *Ba sulfoacetate monohydrate* (*anhyd. salt*, made by azeotropic drying with C_6H_6). Hence, the sulfonic acid is *1,3-cyclopentadiene-5-sulfonic acid*. Possibly, the 1-isomer forms first and isomerizes to the 5-isomer. XIV. Sulfonation of 2-chloropyrrole and 2-phenylazopyrrole. A. P. Terent'ev and L. A. Yanovskaya. *Ibid.* 281-4.—Addn. of the theoretical amt. of SO_3Cl_2-Et_2O to cold pyrrole in Et_2O (0°) gave the unstable 2-chloropyrrole (decomp. in 2-3 hrs. even at 0° in a N atm.). Heating this (2.5 g.) 4 hrs. to 60-70° with 5.45 g. pyridine-SO_3 in Et_2O in a N atm. in a sealed tube, treatment with a $BaCO_3$ suspension at 100° to remove the pyridine, extn. with hot H_2O, freeing of Cl ions by Ag_2SO_4, concn., and addn. of EtOH-Et_2O, gave 40% *Ba 2-chloropyrrolesulfonate* (from aq. EtOH), oxidized with CrO_3 in H_2SO_4 to *maleimide*, m. 92-3°, and inorg. S acids; thus, the sulfonate is the 5-*sulfonate*. The Ba salt is sol. in H_2O, aq. EtOH, but not in Et_2O, and on brief heating in 15% HCl yields SO_2, while Br-H_2O gives $BaSO_4$ in the cold; heating with HNO_3 gives Cl ions, as does warm 20% NaOH. Similar sulfonation of 2-phenylazopyrrole at 70-80° gave 50% *Ba 2-phenylazo-5-pyrrolesulfonate*, yellow (from aq. EtOH-Et_2O), which behaves as above with cleaving reagents and on oxidation. G. M. Kosolapoff

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TERENT'YEV, A. P. 176T16

3 USSR/Chemistry - Sulfonation Feb 51

"Sulfonation and Sulfonic Acids of Acidophobic Compounds. XIV. Sulfonation of 2-Chloropyrrole and 2-Benzolazopyrrole," A. P. Terent'yev, L. A. Yanovskaya, Lab Org Chem, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 2, pp 281-284

Pyridine-sulfotrioxide can be used for sulfonation of 2-chloropyrrole and 2-benzeneazopyrrole. Obtained for 1st time 2-chloropyrrolesulfonic-5 and 2-benzeneazopyrrolesulfonic-5 acids in form of their barium salts.

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C. A.
1951

Organic Chemistry

Sulfonation and sulfonic acids of acidophobic substances XV. Sulfonation of dienes with conjugated double bond systems. A. P. Terent'ev and A. V. Dombrovskii (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 704-14(1951); cf. *C.A.* 45, 3323b, 3390f, 7025h. Heating 25 ml. tech. *bivinyl* in 25 ml. $(CH_2Cl)_2$ in a steel bomb with 96 g. pyridine-SO_3 10 hrs. at 100-10°, treatment with 20% NH_4OH, concn. (after removal of 2 g. polymer), and treatment with $Ba(OH)_2$ gave on concn. of the filtrate 77% *Ba butadienemonosulfonate*; metathesis gave the *K* (m. 210°) and the *Na salts*. Heating 10.8 g. pure bivinyl similarly with 16 g. pyridine-SO_3, removal of the volatile matter, and extn. of the residue with Et_2O gave the primary sulfonation product as a viscous yellow fluid, $C_4H_6(C_5H_5NSO_3)_2$, which on boiling with H_2O yields a Ba salt identical with the above. Treatment of the Ba salt with H_2SO_4 and evapn. of the filtrate *in vacuo* gave the free *1,3-butadiene-1-sulfonic acid* (I), a sirup, which decomp. on evapn. on a steam bath; reduction of the K salt with Na-Hg or HI-P failed, but in the presence of Raney Ni it adds 1 mole H, yielding *K 1-butene-1-sulfonate*, colorless solid, oxidized with $KMnO_4$ to CO_2 and $EtCO_2H$; Br readily adds to I in water, and air-blowing, followed by $BaCO_3$-$AgNO_3$ treatment, yields cryst. $(CH_2:CHCH:CBrSO_3)_2Ba$. Treatment of the Na salt of I with 3 parts PCl_5, followed by extn. with Et_2O, gave a soln. of the *sulfonyl chloride* which with $PhNH_2$ gave the *anilide*, m. 83° (red). Similar sulfonation of isoprene but in the presence of 0.5% *m*-$C_6H_4(NO_2)_2$ stabilizer 8 hrs. at 100° gave 58% *Ba 2-methyl-1,3-butadiene-1-sulfonate*, solid (from aq. MeOH); metathesis gave a cryst. *Na salt*, which with $KMnO_4$ gives SO_4 ion while Br_2 readily adds in aq. soln.; on hydrogenation of the *K salt* over Raney Ni it took up 1 mole H and the product with $KMnO_4$ gave MeEtCO, proving the structure. Similarly, $(CMe:CH_2)_2$ gave 57% *Ba 2,3-dimethyl-1,3-butadiene-1-sulfonate*, low in Ba, but isolated in pure state on crystn. from aq. MeOH; *Na salt*, obtained by metathesis. Oxidation with $KMnO_4$ and treatment of the distillate with NH_4OH and $NiSO_4$ gave Ni dimethylglyoxime ppt. The results indicate that the primary sulfonation product of a diene with pyridine-SO_3 is a 1:2 adduct.

G. M. Kosolapoff

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TERENT'YEV, A. P.; GRINEV, A. N.

Sulfonation

Quinone sulphonation.

Dokl. AN SSSR 81 No. 4, 1951

Laboratoriya Spetsial'nogo Sinteza i Analiza im S. S. Nametkina; Moskovskogo Gosudarstvennogo Universiteta

im M. V. Lomonosova

Rcd. 8 Oct. 1951

SO: Monthly List of Russian Accessions, Library of Congress, May 1952 ~~1953~~, Uncl.

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TERENT'YEV, A. P.

191T27

USSR/Chemistry - Sulfonation

Jul 51

"Sulfonation and Sulfonic Acids of Acidophobic Compounds. XVI. Sulfonation of Certain Indole Derivatives," A P. Terent'yev, L. A. Yanovskaya, Lab Org Chem, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 7, pp 1295-1297

Pyridine-sulfur trioxide is suitable sulfonating agent for indole derivs. Prepd for 1st time and isolated in form of Ba salts 2-phenylindolesulfonic-3, 2-sulfo-3-indolylacetic, 3-acetylindolesulfonic-2, and 1-acetylindolesulfonic-2 acids.

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Sulfonation and sulfonic acids of acidophobic substances
XVI Sulfonation of derivatives of indole. A. P. Terent'ev and L. A. Yanovskaya. J. Gen. Chem. U.S.S.R. 21, 1415-17(1951)(Engl. translation). — See C.A. 46, 2048e. B. R.

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Condensation of formaldehyde with sodium butoxide. V. I. Lyubomilov and A. P. Terent'ev. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 1479-84(1951). Into 1444 g. pure BuOH and 150 g. Na was passed 221.5 g. gaseous CH_2O at 120° over 7.75 hrs.; 0.38 l. H was collected and steam distn. of the mixt., followed by extensive fractionation, gave about 3% *2-methylbutanol*, b. 128.9°, n_D^{20} 1.4102, d_4^{20} 0.8200, and 11% *2-ethylallyl alc.* (I), b. 133.3.5°, n_D^{20} 1.4334, d_4^{20} 0.8550. Close fractionation of the products was not very successful and identification and estn. of yield was done deductively. Warming the fractions contg. I with dil. H_2SO_4 gave *2-methylbutanal* (II), identified as the *2,4-dinitrophenylhydrazone*, m. 128.8.8°; the *dimedon derw.* m. 134.5-5.5° (anhydr., m. 150.5-1.0°). II was also obtained from the Grignard reagent from *iso*-BuBr with $HC(OEt)_3$. G. M. Kosolapoff

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TERENT'YEV, A. P.

USSR/Chemistry - Sulfonation Aug 51

"Sulfonation and Sulfonic Acids of Acidophobic Compounds. XVII. Sulfonation of 2-Chloro, 2-Bromo, and 2-Iodothiophens," A. P. Terent'yev, G. M. Kadatskiy, Lab of Org Chem imeni Acad N. D. Zelinskiy, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 8, pp 1524-1528

188T21

Sulfonation of 2-chloro-, 2-bromo-, and 2-iodothiophen using pyridine-sulfotrioxide yielded 2-chlorothiophen-, 2-bromothiophen-, and 2-iodothiophen 5-sulfonic acids (yields 94.8, 90, 77% resp) isolated as Ba salts, also other salts and derivs. There was no resinification. Showed

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USSR/Chemistry - Sulfonation (Contd) Aug 51

reaction of iodothiophen with normal and "acid" pyridine-sulfotrioxide to proceed under dismutation of halogen.

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CA

The condensation of formaldehyde with sodium butoxide. V. I. Lyubomilov and A. P. Terent'ev. J. Gen. Chem. U.S.S.R. 21, 1013-18(1951)(Engl. translation).—See C.A. 46, 2480h. B. R.

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CA

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Syntheses with acrylonitrile. XIII. γ-Acetobutyronitrile and products of its reduction. A. P. Terent'ev and S. M. Gurvich (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 1632-7(1951); cf. C.A. 42, 4042h; 46, 10058.—Addn. of CH_2:CHCN (212 g.) over 1 hr. to 470 g. stirred, refluxing Me_2CO and 4 g. solid KOH refluxing 2 hrs., cooling, acidification with HCl, sepn. of the small aq. layer, and distn. gave 35 g. $AcCH_2CH_2CH_2CN$ (I), b_{10} 93-8° (crude), b_{10} 238-40°, d_4^{20} 0.9747, n_D^{20} 1.4330, can not be steam-distd., gives the CHI_3 test. Other products include $AcCH(CH_2CH_2CN)_2$ (48.5 g.), b_6 190-9°, d_4^{20} 1.0485, n_D^{20} 1.4780, which also gives the CHI_3 test, and a cryst. undistillable residue of $AcC(CH_2CH_2CN)_3$, m. 152°. When 17 g. I in 400 g. boiling BuOH is treated with 21 g. Na, the usual treatment yields 2.3 g. *2-piperoline*, b_{760} 118-19°, d_4^{20} 0.8412, n_D^{20} 1.4430 (*picrate*, m. 164° (from H_2O); *HCl salt*, m. 207°; *oxalate*, softens at 108°, m. 125°; *flavianate*, orange oil; $PhSO_2Cl$ gives an alkali-insol. oil; *1-C_6H_5NCO* yields the corresponding urea deriv., m. 218°], and some 17% *6-amino-2-hexanol*, b_6 98-100°, d_4^{20} 0.9965, n_D^{20} 1.4702 (*HCl salt*, hygroscopic crystals; *picrate* and *flavianate*, oils; *oxalate*, m. 100°; $PhSO_2Cl$ yields an alkali-sol. oil; *1-C_6H_5NCO* gives a compd., $C_{19}H_{22}O_2N_2$, m. 107°). The amino alc. apparently cyclizes in part during the reaction to yield the pipecoline. The cyanoethylation reaction of Me_2CO is more extensive with increase of temp., and regardless of reagent proportions, conditions of stirring, or order of mixing all 3 possible products always form, the triaddn. product being always formed in 24% or higher yields.

G. M. Kosolapoff

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CA

Sulfonation and sulfonic acids of acidophobic compounds XVII. Sulfonation of 2-chloro-, 2-bromo-, and 2-iodothiophenes. A. P. Terent'ev and G. M. Kadetskii (Moscow State Univ.). *J. Gen. Chem. U.S.S.R.* 21, 1667-71(1951) (Engl. translation).—See *C.A.* 46, 2536b. B. R.

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USSR/Chemistry - Polyamide Fibers Oct 51
Vitamin B_1

"Synthesis With the Aid of the Nitrile of Acrylic Acid. XIV. Preparation of the Dinitrile of Succinic Acid," A. P. Terent'yev, A. N. Kost, Lab of Org Chem imeni Acad N. D. Zelinskiy, Moscow State U.

"Zhur Obshch Khim" Vol XXI, No 10, pp 1867-1869

Describes prepn of dinitrile of succinic acid (yield 80-85%) by action of acrylonitrile on satd aq soln of KCN and $MgSO_4$. The dinitrile can serve as starting material for synthesis of vitamin B_1

194T35

USSR/Chemistry - Polyamide Fibers (Contd) Oct 51

or can be reduced to putrescine (starting material for synthesis of polyamide fibers and used in prepn of series of compds with high physiol activity, i.e., spermine). Results suggest use of mixt of KCN and $MgSO_4$ solns in many cases as substitute for hydrocyanic acid.

194T35

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MAGYAR KEMIAI FOLYOIRAT
HUNGARIAN JOURNAL OF CHEMISTRY
VOL 57—1951
No. 4, April

A. P. Terentiev,
F. I. Klobunovsky
and V. V. Patrikeyev:

Asymmetric synthesis with the aid of catalyzers applied to dextrogyrate and levogyrate quartz (From the Russian) HR 119

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TARANT'YEV, A. P., KOST, A. N.

Polymers and Polymerization.

Action of organomagnesium compound on acrilonitrile. Vest. Mosk. un. 5. no. 1, 1952

9. Monthly List of Russian Accessions, Library of Congress, November 1953/2 Uncl.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

BA

C-1

3497. Salicylidene-amines in analysis. IV. Tricyclic internal complex salts of copper and nickel. A. P. Terentev, E. G. Rukhadze, and Z. A. Fadeeva (*J. anal. Chem., USSR*, 1952, 7, 120—127).—A study is made of the complexes of Cu and Ni with disalicylidene-diamines. There occur three metallo-cycles in the mol. instead of two in the complexes with salicylidene-monoamines (C., 1952, 1301). Disalicylidene-ethylenediamine, -o-phenylenediamine, and -hydrazine are of little use as reagents for Cu and Ni because of their low solubility, but disalicylidene-propylenediamine is recommended for the determination of Cu and Ni. The complexes are more intensely coloured than those with the monamines but their water solubility is higher.

G. S. Smith.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A.P.

Chem (3)

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

Syntheses with acrylonitrile. XV. Preparation of 3-phenyl- and 3,4-diphenylpiperidine. A. N. Kost and A. P. Terentyev (Moscow State Univ.). *J. Gen. Chem. U.S.S.R.* 22, 719-21(1952)(Engl. translation).--See *C.A.* 47, 2759h.
H. L. H.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

USSR/Chemistry - Sulfonation Jan 52

"Sulfonation and Sulfonic Acids of Acidophobic Compounds. XVIII. Sulfonation of Thiophen," A.P. Terent'yev, G. M. Kadatskiy, Lab of Org Chem imeni N. D. Zelinskiy, Moscow State U

"Zhur Obshch Khim" Vol XXII, No 1, pp 153-156

Thiophen (I) reacts with pyridine-sulfotrioxide (II) to form: (a) at 20-30°C, thiophensulfonic-2 acid (III) with 50% yield: (b) at 95-100°, both mono- and disulfonic acids; (c) at 130° or with use of "acid" reagent, disulfonic acids (mixt of 2,4- and 2,5- isomers of thiophendisulfonic acids)

207T29

USSR/Chemistry - Sulfonation (Contd) Jan 52

with process running almost to completion. With 2 mols of SO_3 pyridine forms pyridine-bis-sulfotrioxide (IV), energetic sulfonating agent, suitable for sulfonating acidophobic compds. At 20-30° IV sulfonates I without resinification with 86% yield of III. Primary products of sulfonation with II and IV in place of K salts can be used to prep chlorides of sulfonic acids with high yields.

207T29

TIRENT'YEV, A. P.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

A.PL TEPENT'YEV, L.A. YANOVSKAYA, YA. A. TEPENT'YEVA

May 52

"Sulfonation and Sulfonic Acids of Acidophobic Compoinds, XIX. Polarographic Investigation of Pyrrolsulfonic Acids," Org Chem. Lab, Moscow State U.

Zhur Obshch Khim, Vol 22, No 5, pp 859-865

Pyrroles, E.g., 1-and 2-acetylpyrrole and 1-phenylpyrrole, can be sulfonated with pyridine sulfotrioxide to form α-and β-sulfonic acids. The method of oxidative polarography can be used to detn the position of the sulfo group in pyrrole sulfonic acids. Separate polarographic determination of α- and β pyrrole sulfonic acids in a mixt is possible

263 T 35

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

A.P. TERENT'YEV, L.A. YAN VSKAYA

May 52

USSR/Chemistry - Sulfonation

"Sulfonation and Sulfonic Acids of Acidophobic Compounds,XX. Polarographic Investigation of Indole Sulfonic Acids," Org. Chem. Lab, Moscow State U.

Zhur Obshch Khim, Vol 22, No 5, 00 866-870

Pyridine sulfotrioxide was used to prepare indole sulfonic acid. The oxidative polarographic method can be used to det the position of the sulfo group in indolesulfonic acids.

263-T 36

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

232T24

USSR/Chemistry - Bromination Sep 52

"Bromination With Dioxane-Dibromide. I. Bromination of Phenols," L. A. Yanovskaya, A. P. Terent'yev, L. I. Belen'kiy, Moscow State U

"Zhur Obshch Khim" Vol 22, No 9, pp 1594-1598

Authors propose a convenient new method for brominating phenols, naphthols, and oxyanthraquinones in which the addn product of bromine to dioxane, i.e., dioxane-dibromide, is used.

232T24

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

232T25

USSR/Chemistry - Bromination Sep 52

"Bromination With Dioxane-Dibromide. II. Bromination of Aldehydes and Ketones," L. A. Yanovskaya, A. P. Terent'yev, Moscow State U

"Zhur Obshch Khim" Vol 22, No 9, pp 1598-1602

Authors describe a new method of brominating aldehydes and ketones under use of dioxane-dibromide.

232T25

(CA 47 no. 18: 9258 '53)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A. P.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

USSR/Chemistry - Sulfonation Jun 52

"Stereoisomerism of Omega -Styrenesulfonic Acid," A. P. Terent'yev, R. A. Gracheva, Z. F. Shcherbatova, Moscow State U imeni M. V. Lomonosov

"Dok Ak Nauk SSSR" Vol LXXXIV, No 5, pp 975 - 977

The authors proved that the styrenesulfonic acid obtained by heating styrene with pyridinesulfurtrioxide is the trans isomer. Exposing the trans isomer to light from a quartz lamp for 100 hrs yielded the cis isomer. This was confirmed chemically and by the use of absorption and Raman spectra. Presented by Acad A. N. Nesmeyanov 11 Apr 52.

223T/5
223T15

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

1. TERENT'EV, A. P., VOLODINA, M. A., PANTELEIMONOV, L. A., STECHKINA, I. N.

2. USSR (600)

4. Chemistry - Study and Teaching

7. Results of entrance examinations in chemistry, Khim. v shkole, no. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A.P.

Syntheses with acrylonitrile XVII. Synthesis of some homologs of piperidine. A. P. Terent'yev and S. M. Gurvich. *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 404-8 (1953); cf. C.A. 47, 2692h; 48, 5087g.—To 40 g. iso-Pr_2CO and 1 ml. 50% aq. NaOH was added at 80° over 1 hr. 26.5 g. $CH_2:CHCN$ (Ia); after 3 hrs. at 80° the liquid was decanted and acidified with HCl; the org. layer was decanted, dried, and distd. yielding 28% $Me_2CHCOCMe_2CH_2CH_2CN$ (Ib), b_{10} 128-9°, d_{20} 0.9226, n_D^{20} 1.4435; some 6.2 g. crude ($NCCH_2CH_2CMe_2)_2CO$, b_4 160-80°, was also obtained. Ib (22 g.) in 400 ml. hot BuOH was treated with 21 g. Na, yielding after the usual hydrolytic treatment and steam distn. of the solvent, 39% *3,3-dimethyl-2-isopropylpiperidine*, b_{12} 69-70°, d_{20} 0.8601, n_D^{20} 1.4592 (picrate m. 261°), and 1.2 g. *7-amino-2,4,4-trimethyl-3-heptanol*, b_{12} 130-3°, m. 73° (from EtOH-Et_2O); *mono-1-naphthylurethan*, m. 262° (from AcOH). To 22.2 g. iso-PrBz was added a soln. of 0.2 g. Na in 6 ml. EtOH and the mixt. was treated over 0.5 hr. with 17 g. Ia; after stirring an addnl. hr. at room temp. the mixt. was dild. with Et_2O, filtered, and the filtrate was washed with dil. AcOH, dried and distd. to give 62% $BzCMe_2CH_2CH_2CN$, b_4 159-62°, d_{20} 1.0478, n_D^{20} 1.5204.

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The [illegible] g.) treated [illegible] above with [illegible] g. Na in 150 ml. BuOH gave [illegible] phenylpiperidine, b_{10} [illegible] d_4^{20} 0.9546, n_D^{20} [illegible] (picrate and fluoroborate could not be crystallized); [illegible] m. 217°. To 10 g. cyclohexanone and [illegible] g. Na in [illegible] ml. EtOH was added in [illegible] hrs. [illegible] the [illegible] ml. with EtO), filtered, and the [illegible] bed with dil. [illegible] and distd. yielding [illegible] g. [illegible] b. 121–22°, d_4 1.0181 [illegible] cyclohexylcyclohexanone, b. [illegible] the pot formed in the original reaction mixt. [illegible] g. [illegible] from MeCOEt. 146 g. reduced with [illegible] in 1.6 g. decahydroquinoline, b_{10} 62–72°, [illegible] g. [illegible] in 0.05 g. [illegible]

XVIII Reaction of acrylonitrile with aliphatic diazo compounds and with phenylazide

S. M. Gurevich and [illegible] Ind. 40, 11, [illegible] cooling [illegible] of [illegible] KOH and [illegible] in small portions 30 g. N-nitroso [illegible] was decanted, dried 3 hrs. over KOH, and treated with cooling with 2.3 g. Ia [illegible] gave 5.0 g. viscous product consisting of $H_2C{=}CH_2CH_2C(CN)_2N$ (II), b. 116–18°, b_{10} 93–1°, d_4 1.125[illegible], n_D^{20} [illegible] which does not form a picrate, the product [illegible] 100° and on heating with [illegible] 19.5 g. in 300 ml. BuOH was added at [illegible] yielding, after the usual treatment, [illegible] decomp. [illegible] 224° (decomp.). To 5.75 g. [illegible] acetate was added 2.9 g. Ia with cooling at about [illegible] cott cooling the reaction is explosive; after [illegible] mixt. began to deposit a solid product which was collected on the following day after partial evapn. [illegible] tained in all 65% 3-carbethoxypyrazoline [illegible] 96° from EtOH. Heating 30.5 g. PhN_3 and 31.5 g. Ia on a steam bath 1 hr. gave a vigorous reaction with N evolution; distn. gave 75% $PhN{=}CHCH_2CN$ (III), b_4 [illegible] n_D^{20} 1.5570. When 11.9 g. PhN_3 and 5.8 g. Ia were kept at room temp. in sealed ampul 12 days, however, there was obtained 91% 1-phenyl-Δ²-1,2,3-triazoline-4-carbonitrile, decomp. 98°, which on strong heating gave 65% III. Hydrolysis of III with 1:4 HCl at reflux gave $PhNH_2$. Reduction of 14.4 g. III in 110 ml. EtOH by addn. of this mixt. to 23 g. powd. Na in MePh, gave after the usual aq. treatment $PhNHCH_2CH_2CH_2NH_2$ (IV), b_7 134–5°, d_4 1.0332, n_D^{20} 1.5747 (picrate, decomp. 174–5°; cf. Goldenring, Ber. 23, 1168 (1890)). Refluxing 46.5 g. $PhNH_2$, 27.5 g. Ia and 30 g. $PhNH_2$.AcOH 12 hrs. at 140–50° gave on distn. 96% $PhNHCH_2CH_2CN$, b_4 140–2°, m. 48° (from dil. EtOH); this (29.2 g.) reduced in 140 ml. EtOH with 27.6 g. Na and 0.5 g. K in 120 g. MePh, as above, gave 47% IV, identical with the above specimen.

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P. and GURVICH, S. M.

Syntheses by Means of Acrylonitrile. XVIII. Interaction of Acrylonitrile with Fatty Diazocompounds and with Phenylazide, page 409, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol I, Moscow-Leningrad, 1953, pages 762-766.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A. P.

Chlorosulfonation. III. Orienting effect of the phenyl radical in the reaction of photochemical chlorosulfonation of benzene homologs. A. P. Terentyev and A. [illegible] Lyubarskii. [illegible] Khim. [illegible] S.S.S.R. 1, 555-8(1953); cf. C.A. 43, 2[illegible].—In photochem. chlorosulfonation of benzene homologs, the Ph radical is not affected, but hinders the entry of SO_2Cl at the 1st C atom of the sidechain. Passage of a mixt. of Cl and SO_2 into 173.4 g. MePh under ultraviolet illumination 6 hrs. at 30-5° gave a product free of S, and yielded 157 g. $PhCH_2Cl$ and 23.9 g. $PhCHCl_2$. With EtPh (175.2 g.) a similar reaction gave 153 g. (66.24%) PhCHClMe, 1.87% $PhCCl_2Me$, and 1.87% $PhCCl_2CH_2Cl$, as well as 7.5% $PhCH_2CH_2SO_2Cl$. Similar reaction of $PhCMe_3$, b. 197-3°, gave 40% $PhCMe_2CH_2SO_2Cl$, b. 135-7°; amide, m. 71.5° (from H_2O).

G. M. Kosolapoff

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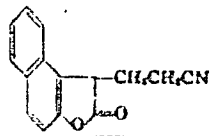
"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

1/2

Reactions of mobile amino group. I. Reactions of substitution of the dimethylamino group in 1-(dimethylaminomethyl)-2-hydroxynaphthalene. A. P. Terent'ev, A. N. Kost, N. A. Dzhanovskii, and S. V. Marochko (Moscow State Univ.). *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 610-15(1953); cf. preceding abstr.—1-(Dimethylaminomethyl)-2-hydroxynaphthalene (58 g.) in 260 ml. EtOH with 37.5 g. KCN in 85 ml. H_2O heated in an autoclave 6.5 hrs. at 180-200° gave on cooling a brown ppt. of *K 1-(2-hydroxynaphthyl)acetate*, in 75% yield; washing with EtOH, soln. in 2% NaOH, and pptn. with HCl gave 63% *free acid* (I), m. 146° (from H_2O). I treated with Me_2SO_4 in 10% NaOH at 80-100° gave 60% *1-(2-methoxynaphthyl)acetic acid*, m. 211° (from EtOH), while I with BzCl in 10% NaOH gave 47% *1-(2-benzoyloxynaphthyl)acetic acid*, m. 165.5-7° (from MeOH). I (15 g.) and 30 g. Ac_2O refluxed 13 hrs. gave 60% *lactone* (II), m. 103°. II (1.8 g.) in dioxane treated with 0.06 g. KOH in abs. EtOH followed by 1.6 g. CH_2:CHCN, and refluxed 2 hrs., gave 20% III, m. 91° (from H_2O). Me_2SO_4 added slowly (13.2 g.)



(III)

to 20 g. 1-(dimethylaminomethyl)-2-hydroxynaphthalene in 50 ml. EtOH, the resulting soln. added over 1 hr. to 50.5 g. cryst. Na_2SO_4 in 60 ml. H_2O at 80°, heated 2 hrs. and cooled, yielded 61% *1-(2-hydroxynaphthyl)methanesulfonic acid*, plates (from dil. EtOH), *S-benzylthiuronium salt* (IV), m. 224-7°. IV is formed in 72% yield when 50.5 g. cryst. Na_2SO_4, 8.3 g. 35% formalin, and 20 ml. H_2O are treated with 14.4 g. 2-$C_{10}H_7OH$, heated 4 hrs. at 80-90°, filtered and acidified with H_2SO_4. $CH_2(CO_2Et)_2$ (58 g.) was added to 7 g. Na in 100 ml. EtOH, followed by slow addn. of 20 g. 1-(dimethylaminomethyl)-2-hydroxynaphthalene and 130 g.

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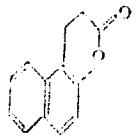
Me_2SO_4 in 40 ml. EtOH, heated 5 hrs., the solid product treated with H_2O, 50% HCl and extd. with Et_2O. The ext. gave 13 g. [illegible] $CH_2(CO_2Et)_2$ which was distd. The residue taken up in 30% NaOH and refluxed 4 hrs., dild. with H_2O, acidified with HCl and steam distd., yielded 0.7 g. 2-$MeOC_6H_4$, the distn. residue was extd. with Et_2O, yielding 10% V, b. [illegible]-185° (decompn.), m. 69.5° (from petr. ether). $AcCH_2CO_2Et$ (52.5 g.) was added to 7 g. Na in 135 ml. EtOH, heated 1 hr., treated with 20 g. 1-(di-



(V)

methylaminomethyl)-2-hydroxynaphthalene and 13 g. Me_2SO_4 in 50 ml. EtOH, refluxed 8.5 hrs., filtered, concd. *in vacuo*, treated with 100 ml. H_2O, refluxed 0.6 hr., acidified with 10% HCl (much CO_2 evolves) and extd. with Et_2O to yield on evapn. 23% *1-(2-hydroxy-1-naphthyl)-3-butanone*, b. 73.5-4.5° (pressure unstated although distn. *in vacuo* is specified), m. 51-2° (from petr. ether). A small amount of unidentified material, m. 211°, was also isolated.

G. M. Kosolapoff

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TERENT'YEV, A.A.

U.S.S.R.

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USSR

Catalytic asymmetric synthesis. I. Asymmetric decomposition of racemic 2-butanol over Cu-quartz catalysts.

A. P. Terentiev and [illegible] Moscow State Univ. [illegible] (Zhur. Obshchei Khimii 7, 1627-[illegible] (Russian supplement of [illegible] 151, 145-[illegible]).

Recycling of [illegible] for reacting dl 2-butanol with optically active quartz coated with Cu layer. The max. rotation of the catalyzate was 0.18° and [illegible] word. At higher temp. both the dehydrogenation and dehydration reactions took place, both of which are optically selective under these conditions. The specificity of action of the catalyst rises exponentially with decrease of the Cu layer. The temp. factor of the racemic dehydrogenation was 15.5 kcal./mole, while that of asymmetric reaction was 8.[illegible] kcal./mole (these are the apparent activation energies calcd. from results at 300-450°). **II. Asymmetric decomposition of 2-butanol by quartz catalysts.** *Ibid.* 1593-1604. Circulation of 2-butanol at 370-640° over a catalyst prepd. by deposition of Ag on optically active quartz specimens gave the following results. Specificity of the reaction in yielding optically active product reaches max. at 350°, the specificity being calcd. by formula: $Sp = p/P \times 100$, where p is excess antipode in the catalyzate and P is total percentage of conversion. The activation energy for dehydrogenation was found to be 11.37 kcal./mole; for dehydration 14 kcal./mole. Similar reaction on Ni-coated quartz gave 2 max. of specificity: 322° and 165° (435° for some specimens with high Ni content); activation energies were 8.95 and 15.56 kcal./mole, resp. [illegible] Pt-coated quartz reaction specificity shows 2 max.: [illegible] and 355°; activation energies: 4.67 and 11.28 kcal./[illegible], resp. Pd-coated quartz caused only dehydrogenation [illegible] a max. in specificity; Al_2O_3-coated quartz [illegible] of optically selective action (shown graphically) with [illegible] of activation of nonspecific dehydration is 16.1 kcal. [illegible] The max. rotation achieved was obtained with Ni [illegible] and amounted to +0.16° and −0.12°, resp.

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The sign of rotation was dependent only on the sign of rotation of the quartz carrier and independent of the metal used. III. Reactions of isomerization, dissimulation and hydrogenation. *Ibid.* 1905-11. [illegible] osition of metals (Ni is preferred) on optically active quartz can be used for realization of absolute [illegible] sis in such reactions as vapor phase isomerization of propylene oxide, dissimulation of 1-methyl-2-cyclohexanone, hydrogenation of α-pinene (in Decalin soln.), and in [illegible] tion of Et phenylglycidate. For isomerization of propylene oxide, Ag coating is the most specific catalyst; in this case the temp. coeff. of the reaction shows a decline of specificity with rise in temp. The max. rotations of the products range about 0.05°–0.09°, which followed the sign of rotation of the quartz specimen used. IV. Cyanoethylation of cyclohexanone and 1-methyl-2-cyclohexanone. A. P. Terent'ev, E. I. Klabunovskii, and E. I. Budov [illegible]. *Ibid.* 1912-16.—Cyanoethylation of cyclohexanone and 1-methyl-2-cyclohexanone in the presence of optically active quartz coated with EtOLi, EtOK or EtONa yielded products of asymmetric reaction, with max. rotations achieved being 0.07° for cyclohexanone reaction, and 0.157° for the Me deriv. The activity of the catalysts passes through a max., then declines owing to poisoning by the [illegible] [illegible] is formed. [illegible]

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TERENT'YEV, A. P.; KLABUNOVSKIY, YE. I.

Catalytic Asymmetrical Synthesis. II. Asymmetrical Decomposition of Butanol-2 by Quartz Catalysts, page 1598, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol. II, Moscow-Leningrad, 1953, pages 1680-1686.

Laboratory of Organic Chemistry imeni Acad, N. D. Zelinskiy, Moscow State U.

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TERENT'YEV, A. P.; KLABUNOVSKIY, YE. I.

Catalytic Absolute Asymmetrical Synthesis. III. Reactions of Isomerization, Dismutation and Hydrogenation, page 1605, Sbornik statey po obshchey khimii, (Collection of Papers on General Chemistry), Vol. II, Moscow-Leningrad, 1953, pages 1680-1686.

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TERENT'YEV, A. P.; KLABUNOVSKIY, YE. I.; BUDOVSKIY, E. I.

Catalytic Absolute Asymmetrical Synthesis. IV: Cyanoethylation of Cyclohexanone and 1-Methyl Cyklohexanone-2, page 1612, Sbornik statey po obshchey khimii, (Collection of Papers on General Chemistry), Vol. II, Moscow-Leningrad, 1953, pages 1680-1686.

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NESMEYANOVA, P.A.; BOBROVA, P.A. [editors]; TERENT'YEV, A.P. [reviewer].

"Synthetic organic compounds." Vol. 2. A.N.Nesmeianova, P.A.Bobrova. Reviewed by A.P.Terent'ev. Sov.kniga no.8:13-15 Ag '53. (MLRA 6:8)
(Chemistry, Organic) (Nesmeianova, A.N.) (Bobrova, P.A.)

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TERENT'YEV, A.P.

USSR.

Sulfonation of some saturated compounds. [illegible] Different methods of sulfonation of the following were investigated: $MeNO_2$ (I), nitrocyclohexane (II), $MeCN$ (III), $MeCH_2CN$ (IV), $AcOEt$ (V), $EtCO_2Et$ (VI), and $PrCO_2Et$ (VII); $PrCO_2H$ (VIII), Me_2CCH_2CN (IX), and $CH_2(CO_2Et)_2$ (X). Pyridine-SO_3 did not sulfonate the above even at 150°. SO_3 soln. with I at first gave a homogeneous, transparent liquid, which suddenly underwent a violent reaction with evolution of CO_2, NO_2, and SO_2. The following 3 reagents in $(CH_2Cl_2$ gave variable results: (a) SO_3; (b) pyridine-$2SO_3$ prepd. by adding SO_3 to pyridine-SO_3 under $(CH_2Cl)_2$; and (c) dioxane-SO_3. The products as Ba salts and the yields in % from a, b, and c were as follows: I, $(CH_3O_3NS)_2Ba$, 14.9, 4, 6; II, $(C_6H_{10}O_3NS)_2Ba$ (sic), 25.5, 22, 20; III $(C_2H_3O_3NS)_2Ba.H_2O$, 35, 28, 70; IV $(C_3H_5O_3NS)_2Ba.2H_2O$, 7.7 g. from 4 g. IV, 80, —; V $C_4H_7O_5S_2Ba$, 45, quant., quant.; VI $C_5H_9O_5S_2Ba$, 48, quant., —; VII $C_6H_{11}O_5S_2Ba$, 15, —, quant.; VIII $(C_4H_8O_4NS)_2Ba.2H_2O$, 12.7 g. from 7 g. VIII, quant., —; IX and X with c have yields of 25 and 50%, resp. All Ba salts were H_2O-sol. Those of I and II did not hydrolyze in boiling water; the salts of the nitriles hydrolyzed in boiling H_2O to give amides, in alk. soln. to give NH_3. The ethers gave diacids very readily; the monoacids could be obtained only with the greatest care, the salts were difficult to isolate in the pure state.

I. Bencowitz

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TERENT'YEV, A.P.

USSR

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Sulfonation of enol acetates. A. P. Terent'yev, A. M. [illegible], A. P. [illegible], A. H. Obeshchaev, [illegible], and I. I. [illegible]. *Izv. Vsesoyuz. Nauch. Issled. Inst. Fiz. Khim. Issled. i Ekspertizy Lekarstv. Sredstv* No. 4, 121-6(1953); cf. *C.A.* 44, 1095g.—To 2.3 g. of vinyl acetate (I) was added 5 g. of pyridine-SO_3 complex in 10 cc. $(CH_2Cl)_2$. After heating 8 hrs. at 120° the mixt. dissolved in hot H_2O, treated with 0.5 cc. of 0.2*N* H_2SO_4, refluxed 4 hrs., AcOH distd. off and the soln. treated with $BaCO_3$ gave 85% $(OHCCH_2OCH{:}CHSO_3)_2Ba$ (II) (from MeOH). Since intermediate product $AcOCH{:}CHSO_3Ba_{1/2}$ (presence indicated by decolorizing Br_2H_2O) hydrolyzed readily in acid to give AcOH it was desirable to carry out the hydrolysis rapidly. The same type of sulfonation was carried out with isocrotyl acetate. After 10 hrs. at 150° in a sealed tube it gave 35% $[Me_2C(CHO)SO_3]_2Ba$. To a stirred soln. of 8 g. SO_3 in 60 cc. $(CH_2Cl)_2$ at 0°, was added 8.8 g. of dioxane and 4.3 g. of I, kept cold 6 hrs., then evapd. on a water bath 8 hrs., 5 cc. H_2O in 2 portions added, and treated with $BaCO_3$ to yield 26% II. To a similar dioxane-SO_3 iced mixt. I g. of isopropenyl acetate was added with stirring to yield 67% of $(C_3H_4O_4S)_2Ba.H_2O$. $ClHgCH_2CHO$ (*C.A.* 44, 7225d) was sulfonated with SO_3 in $(CH_2Cl)_2$ to give 41% $(HO_2CCH_2SO_3)_2Ba$ instead of the expected II, which in acid gave off CO_2 and did not form insol. salts with *S*-(β-naphthyl)thiuronium chloride (III). To 21.2 g. of I was added while cooling, 62 g. of dioxane dibromide in portions (cf. *C.A.* 44, 835*i*), the lower layer washed with ice H_2O, dried over $CaCl_2$, distd. *in vacuo* gave $AcOCHBrCH_2Br$ (IV) (yield 50%), b_{12} 101-3°, n_D^{20} 1.5057, d_{20} 1.9170 (cf. McElvain, *C.A.* 39, 2500*i*). To 2.5 g. IV was added 3 g. Na_2SO_3 in 25 ml. H_2O, heated under reflux and then treated in the usual manner with $BaCO_3$; after cooling, III was added and the salt recrystd. from C_6H_6, m. 202-3°. Identification of the sulfoaldehydes was simplified by the fact that the salts with III had a definite m.p. at 202-3°.

I. Berkowitz

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TERENT'YEV, A., Eng-Col

Listed as author of article, "The Use of an Air Pump for Inserting Liquid Into Counterrecoil Mechanisms," published in Artilleriyskiy Zhurnal, No 11, 1953. (Sovetskaya Armiya, 25 Nov 53)

So: Sum 145, 1 June 1954

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TERENT'IEV, A.P. (Moskva); GURVICH, S.M. (Moskva)

Synthesis of piperidine systems by the cyclization method. Usp.khim. 22 no.6:649-685 Je '53. (MLRA 6:5)

(Piperidine)

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Chem

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Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

Chlorosulfonation. I. Thermal decomposition of the chlorides of aliphatosulfonic acids as a method of determination of the position of the sulfo group. A. P. Terent'ev and A. I. Gershenovich. Zhur. Obshchei Khim. 23, [illegible] (1953).

Thermal decompn. of RSO_2Cl yields 75-84% RCl with the Cl taking the place of the SO_2Cl group, thus affording a method for detg. the orientation. Me_2CHCl (150 g.) in 500 ml. EtOH boiled 40 hrs. with 230 g. KCNS gave 83.3% 2-thiocyanatopropane, b_{15} 148-50°, d_{20} 0.9784. This (155 g.) in 1.5 l. H_2O was treated with Cl below 20° with good stirring until excess Cl became evident (yellow color) and this excess then removed by blowing with N; extn. with Et_2O and washing with H_2O there was gave 83.2% Me_2CHSO_2Cl (I), b_{11} 71-3°, d_{20} 1.2645. I (10.2 g.) in 50 ml. Et_2O chilled to −40° added to 11 g. liquid NH_3 yielded 91.2% of the corresponding *amide*, m. 66° (from Et_2O-petr. ether). Similarly BuCl gave 75.8% *BuSCN*, b. 182-3°, then 90% $BuSO_2Cl$ (II), b_7 75-6°, d_{20} 1.2078, then 82.4% *amide*, m. 44-4.5°. iso-BuBr similarly gave after 16 hrs. refluxing 73.2% *iso-BuSCN*, b_8 57-8.5°, which gave 84% *iso-$BuSO_2Cl$* (III), b_{11} 77-8°, d_{20} 1.2014; its *amide* is a liquid, but the *N-cyclohexyl amide*, prepd. by refluxing III with the amine in Et_2O, m. 56-7°. $PhCH_2CH_2Cl$ and KCNS gave after 40 hrs. 66.4% $PhCH_2CH_2SCN$, b_1 116-18°, d_{20} 1.2158, which yielded 51% $PhCH_2CH_2SO_2Cl$ (IV), m. 81-2°; the *amide* (66.3%), m. 129-9.5° (from H_2O). II (126 g.) treated with a Cl_2-SO_2 mixt. under ultraviolet light 10 hrs. at 40° gave 173 g. products which yielded 119.4 g. distillate, b_9 60-80°, and 50.3 g. residue. The latter extd. with hot C_6H_6, decolorized, and treated with CCl_4 gave 41.2 g. $(CH_2CH_2SO_2Cl)_2$ (V), m. 82.5-3.0°; the filtrate, dild. with petr. ether, gave 6.3 g. $MeCH(SO_2Cl)CH_2CH_2SO_2Cl$ (VI), m. 40-1°. Heating 25.28 g. I 1.5 hrs. to 200-20° gave a distillate contg. 10.5 g. Co-PrCl, b. 36-7°, whose structure was confirmed by repeat-

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ling the above synthesis of I from II. Similarly, II gave 87.9% BuCl, III 79.5% iso-BuCl, V 79% $(CH_2CH_2Cl)_2$, and VI 72.5% $MeCHClCH_2CH_2Cl$, b. 130-2°, d_{20} 1.0849, and IV 59.4% $PhCH_2CH_2Cl$. The structures of the products were confirmed as stated above. II. **Orienting effects of the chlorosulfonyl and chloro groups in photochemical chlorosulfonation.** *Ibid.* 208-12.—The Cl and SO_2Cl residues already present in a mol. serve to repel the attack of a newly entering SO_2Cl group in photochem. chlorosulfonation to distant points in the mol., as shown by the following examples. Me_2CHSO_2Cl for these reasons is unattacked under normal conditions. The reaction was run in a tube reactor irradiated with a Hg-vapor lamp, a rough diagram of which is given. Passage of Cl (at 1.1 ml./sec.) and SO_2 (2.2 ml./sec.) into 134 g. BuCl at 40° over 7 hrs. gave a 50.4-g. wt. increase; on distn. 82.27 g. BuCl was recovered, along with 9.61 g. polychlorides and 88.44 g. $C_4H_8O_2SCl_2$, $b_{2.5}$ 105-16°. Thermal decompn. of the mixed disulfonyl chlorides gave mixed dichlorobutanes, which, after treatment of KCNS, followed by chlorination (cf. preceding abstr.) gave 3.45 g. $(CH_2CH_2SO_2Cl)_2$, m. 83-4°, while the C_6H_6-CCl_4 filtrate on evapn. gave 10.38 g. $MeCH(SO_2Cl)CH_2CH_2SO_2Cl$, m. 40-1°. The ratio of the 1,4- and 1,3-isomers was approx. 1:3. Similar treatment of Me_2CHSO_2Cl over 6 hrs. gave unchanged material only. Passage of Cl and SO_2 as above into 120 g. $BuSO_2Cl$ 10 hrs. gave, in addn. to 31.4 g. unchanged material, 79.5 g. mixed $ClCH_2CH_2CH_2CH_2SO_2Cl$ (I) and $MeCHClCH_2CH_2SO_2Cl$ (II), b_4 107-11°. Thermal decompn. of 10.4 g. of this mixt. gave 4.79 g. mixed dichlorobutanes, which, treated with KCNS, followed by chlorination, gave 0.32 g. $(CH_2CH_2SO_2Cl)_2$ (III) and 3.38 g. $MeCH(SO_2Cl)CH_2CH_2SO_2Cl$ (IV). The residue after distn of I and II (50.8 g.) extd. with C_6H_6, decolorized, and mixed with CCl_4 gave 31.6 g. III and 15.3 g. IV. Chlorination of 100 g. $BuSO_2Cl$ over 8 hrs. at 30-5° with Hg-lamp irradiation gave 81.4 g. $C_4H_8O_2SCl_2$, b_2 100-12°; this mixt. (20 g.) was thermally decompd. to 0.2 g. mixed dichlorobutanes, which with KCNS and Cl as above gave 2.7 g. I and 7.8 g. II.

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Photochemistry

Sulfochlorination. Part 2. Orientation effect of the SO_2Cl and Cl groups in photochemical sulfochlorination. Zhur. ob. khim. 23, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

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Reaction of mobile amino group II. Exchange of amino group in 3-(dialkylamino)propionitriles. A. P. Terent'ev, A. N. Kost, and S. M. Gurvich (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 615–17(1953); cf. *C.A.* 47, 8663h. —Slow addn. of Me_2SO_4 to $Me_2NCH_2CH_2CN$ in C_6H_6 gave the quaternary salt (I), needles (from MeOH), which, heated to 120°, begins to decomp. (at 200° the reaction is rapid) into CH_2:CHCN and Me_3N. The former is obtained in 70% yield. Similar pyrolysis of the Et_2SO_4 salt at 180–200° gave 86% CH_2:CHCN and a very low yield of $MeEt_2N$, b. 66–9° (picrate, m. 184°). Pyrolysis in the presence of solid KOH at 100–200° gave 88% CH_2:CHCN. Addn. of 44.9 g. $ClCH_2CH_2CN$ dropwise to 28 g. KOH and 10 g. Et_3N heated to 120° gave a distillate contg. 75–80% CH_2:CHCN. I (22 g.) refluxed 4 hrs. with 4.6 g. Na dissolved in 60 ml. MeOH gave Me_3N and 21% $MeOCH_2CH_2CN$, b_{18} 164–5°, n^{20}_D 1.4031, d_{20} 0.9488. Refluxing 24 g. $Me_2NCH_2CH_2CN.MeI$ with 5.6 g. KOH in 74 g. BuOH 6 hrs. gave 73.7% $BuOCH_2CH_2CN$, b_{16} 80–2°, d_{20} 0.8904, n^{20}_D 1.4174. Heating 13.4 g. $Et_2NCH_2CH_2CN.MeI$ with 4.8 g. KCN in 50 ml. H_2O in an autoclave 6 hrs. at 150–60° gave, after acidification of the cooled mixt. and extn. with Et_2O, 80% $(CH_2CO_2H)_2$, m. 182°. G. M. Kosolapoff

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TERENT'YEV, A. P.

Sulfonation and sulfonic acids of acidophobic substances. XXIII. Sulfonation of aldehydes and ketones. A. P. Terent'ev and E. A. Yanovskaya (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 618-23(1953); cf. *C.A.* 46, 11178*b*; 48, 4430*a*.—As a result of expts. with various sulfonating agents [SO_3 in $(CH_2Cl)_2$, pyridine-SO_3, pyridine-$2SO_3$, dioxane-SO_3], it was shown that for sulfonation of aldehydes dioxane-SO_3 is most suitable, while for ketones all the above agents except pyridine-SO_3 can be employed. To 5.6 g. AcH in 10 ml. $(CH_2Cl)_2$ was added with cooling dioxane-SO_3 from 6.6 g. SO_3 and 25 ml. $(CH_2Cl)_2$ with excess dioxane; after 12 hrs. at 0° and neutralization with a suspension of $BaCO_3$, an aq. ext. of the evapd. mixt. gave 6.5 g. *Ba acetaldehydisulfonate hydrate*, $(C_2H_3O_4S)_2Ba.H_2O$ (from aq. BtOH-Et_2O). Addn. of 5.8 g. AcH to a suspension of dioxane-SO_3 from 35 g. SO_3 in $(CH_2Cl)_2$ at 0° gave after 12 hrs. 100% *Ba disulfonate*, $C_2H_4O_6S_2Ba.H_2O$. Similarly 5.8 g. EtCHO in $(CH_2Cl)_2$ treated with 8 g. SO_3 in 20 ml. $(CH_2Cl)_2$ with cooling and then immediately with $BaCO_3$ gave 7 g. $(C_3H_6O_4S)_2Ba.H_2O$ (I); 8.5 g. EtCHO treated with cooling with pyridine-$2SO_3$ from 24 g. pyridine-SO_3 and 12 g. SO_3 in $(CH_2Cl)_2$ gave 12.5 g. $C_3H_6O_4S_2Ba$. EtCHO and dioxane-SO_3 under similar conditions give 55% I.

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TERENT'YEV, A. P.

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Sulfonation and sulfonic acids of acidophobic substances. XXII. Sulfonation of vinyl ethers. A. P. Terent'ev, A. N. Kost, A. M. Yurkevich, and B. E. Khaskina (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 716-53(1953); cf. *C.A.* 48, 3339b.—Heating 5 g. 25% soln. of CH_2:CHCl in $(CH_2Cl)_2$ and 6 g. *pyridine-SO_3* in an ampul 1.5-2 hrs. at 170°, soln. in H_2O, neutralization with $BaCO_3$, steam distn. of the pyridine, filtration of the residue, treatment of the filtrate with C, concn., addn. of MeOH, and extn. of the product with hot EtOH for 3 days gave 5% *$(HCOCH_2SO_3)_2Ba$* (I), formed apparently from the primary product CH_2.CHCl.O.SO_3.O.Ba.O.SO_3. Similar reaction of Me_2C:CHBr gave after 6 hrs. at 110° 85% *Ba salt* of *2-sulfoisobutyraldehyde* (II), which reduces ammoniacal $AgNO_3$; *Pb salt*, sirup; *Ag salt*, insol. in H_2O. CH_2:CHOBu (3 g.), 3.2 g. pyridine-SO_3 and 6 ml. $(CH_2Cl)_2$ heated 9 hrs. at 70-90° and treated as above, gave 30% I, forming a *monohydrate* on crystn. from H_2O; refluxing the reactants 14 hrs. gives a 32.5% yield; use of dioxane-SO_3 gives 42%. I with *S-2-naphthylthiuronium chloride* gave the *S-2-naphthylthiuronium salt*, m. 202-4° (from C_6H_6). CH_2:CHOAc and pyridine-SO_3 in $(CH_2Cl)_2$ gave, after 8 hrs. at 120° and the usual treatment, 85% I; dioxane-SO_3 gave 62%. For better isolation of the product and removal of AcOH the product is best refluxed 4 hrs. with 0.2*N* H_2SO_4 before treatment with $BaCO_3$. H_2C:CMeOAc (1 g.) added to 1 g. SO_3, 6 ml. $(CH_2Cl)_2$, and 0.9 g. dioxane with ice cooling gave 67% *Ba acetonesulfonate monohydrate*. Refluxing 28.8 g. iso-PrCHO, 61 g. Ac_2O and 6 g. KOAc 10 hrs. gave 30.5 g. *Me_2C:CHOAc*, b_{16} 121-4°, n_D^{20} 1.4106, which, heated with pyridine-SO_3 10 hrs. at 150° in an ampul, gave 35% II. ClHgCH$_2$CHO heated with SO_3 in $(CH_2Cl)_2$ 12 hrs. on a steam bath, treated with H_2O, freed of Hg salts with H_2S, and neutralized with $BaCO_3$, gave 41% *Ba sulfoacetate monohydrate* (from H_2O). Addn. of dioxane dibromide (62 g.) to 21.2 g. CH_2:CHOAc with cooling gave 50% *Br-CH_2CHBrOAc*, b_{11} 101-3°, n_D^{20} 1.5057, d_4 1.9170, which (2.5 g.) refluxed 1 hr. with 3 g. Na_2SO_3 in 25 ml. H_2O, concd., treated with $BaCO_3$, filtered, evapd. and treated with S-2-

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Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Organic Chemistry

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A.P.

Chemical Abst.
Vol. 48
Apr. 10, 1954
Organic Chemistry

[illegible]
[illegible] 47 [illegible] 46 [illegible]
refluxing ml. abs. EtOH was added [illegible] the mixt. was dild. with 100 ml. H_2O [illegible] reaction, steam-distd. into 10% HCl, and the steam [illegible] tillate further treated with steam and [illegible] yielding [illegible] which, with NaOH under Et_2O, gave 60% *FlOCH₂CH₂CH₂NH₂*, b_{10} 49–50°. To 22 g. Na in 50 ml. hot MePh was added in 0.5 hr. 5.3 g. CH_2:CHCN in 350 ml. iso-BuOH at 140–50°, then 200 ml. H_2O after soln. of the Na, and the product steam-distd. as above, yielding 63.1% *iso-BuOCH₂CH₂CH₂NH₂*, b_{14} 72–3°, and 1.28 g. $PrNH_2$.HCl, m. 150°. A similar reaction in BuOH gave 44.3% *BuOCH₂CH₂CH₂NH₂*, b_{12} 78–9°, b_{10} 71–2°; a lesser proportion of CH_2:CHCN gave a 59.6% yield. Similarly was formed 41.4% *iso-AmOCH₂CH₂CH₂NH₂*, b_{18} 78.5–80.0°.

G. M. Kosolapoff

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

Organic Chemistry

Synthesis with acrylonitrile. XX. Cyanoethylation of

[illegible] nitrile is obtained, along with [illegible] $Me_{[illegible]}CH_2N(CH_2CH_2CN)_2$, b_{12} 218–19°, m. 59.5–60° (from H_2O); HCl salt, m. 121–1.5° (from EtOH). Reaction of 5 g. $EtO_2CCH_2NH_2$ with 5.1 g. I in Et_2O after 3 [illegible] fluxing [illegible] EtO_2CCH_2 [illegible]

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

Reactions of mobile amino group. III. Reductive cleavage of gramine. A new synthesis of skatole. A. P. Terentiev, N. A. Dobanovskii, and [illegible] Zhur. Obshchei Khim. 23, [illegible] [illegible] g. Zn dust and 4 g. NH_4Cl with a free flame [illegible] gave a distillate of 53% crude *skatole*, m. 91-3°. To 8 g. gramine in 160 ml. MeOH was added 20 g. NaOH in 160 ml. H_2O, the soln. heated to b.p. and treated slowly with 10 g. Zn dust over 2 hrs. After heating 12 hrs. on a steam bath [illegible]

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

Chemical Abst.

Organic Chemistry

Reaction of formamide and its N-substituted derivatives with some γ-oxo alcohols. A. P. Terent'ev and M. A. Volodina (M. V. Lomonosov State Univ., Moscow, [illegible]

[illegible] when the CO_2 evolution slowed down, then refluxed with 100 ml. concd. HCl 8 hrs., made [illegible] with Et_2O gave 2.5 g. 2-methylpyrrolidine, [illegible] rate, [illegible] This passed [illegible] gave [illegible] 1-methylpyrrole [illegible]

[illegible] with [illegible] HCl, yielding 90.5% $AcCH_2CH_2CH(OH)Me$, [illegible] 60-1°, n^{18} 1.4328, d_{20} 0.9034; the yield is raised to 72% if the lactone is not isolated and the whole mixt. is heated with 7% HCl. The alc. (11.6 g.) heated with 30 g. $HCONH_2$ and 2 g. Ni catalyst 14 hrs. to 110-20°, finally to 150-5° then refluxed with HCl gave 4.2 g. 2,5-dimethylpyrrolidine, b_{20} 110-13°, n^{18} 1.4317, d_{20} 0.8144, [illegible]

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A.P.

Application of dioxane sulfur trioxide to determination of active hydrogen atoms in alcohols and aromatic amines. A. P. Terent'ev and N. B. Kupletskaya (M. V. Lomonosov State Univ., Moscow). Doklady Akad. Nauk S.S.S.R. 90, 807-9(1953). To the sample add a known amt. of dioxane-SO_3 in dioxane [illegible] and allow the mixt. to stand 2-3 min. After addn. of [illegible] and other [illegible] methyl orange [illegible] poor results (60-80%). [illegible]

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TERENT'YEV, A.P.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Analytical Chemistry

(3) chem

Gasometric determination of aldehydes and ketones. A. P. Terent'ev and K. S. Zabrodina (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 92, 1181–4(1953).—The following gasometric method for aldehydes and ketones, run in pyridine soln., is described. In a small distn. flask, treat 3 ml. of 5% $PhNHNH_2 \cdot HCl$ soln. with 4.5 ml. pyridine and a sample of the substance to be tested; heat the mixt. on a water bath 30–45 min. or keep at room temp. 2–4 hrs. Then add 10 ml. Et_2O, fit the flask with a dropping funnel whose tip goes to the bottom of the flask and connect the side-tube of the flask to an azotometer contg. 50% aq. EtOH for absorption of Et_2O. Displace the air by warming the vessel and add satd. $Cu(NO_3)_2$ soln. to the reaction mixt. until a green color forms; when N_2 evolution stops, add 2 ml. satd. $FeSO_4$ and 5–7 ml. Et_2O and expel residual N_2 into the azotometer by warming. In this manner a variety of aldehydes and ketones showed their CO content within 0.005 units. G. M. K.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

USSR/Biology - Plant Growth Stimulators FD-783

Card 1/1 : Pub 129-20/24

Author : Terent'yev, A. P. and Dzbanovskiy, N. A.

Title : On the introduction of plant growth stimulators into agriculture

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, 9,2,153-155, Mar 54

Abstract : The development, present uses, and possible future agricultural applications of growth stimulators such as heteroauxin, NRK, and DU in the USSR are discussed in the light of the resolutions of the 19th Congress of the September Plenum of the CC, CPSU concerning necessary increases in agricultural production. The names of persons and organizations engaged in work on growth stimulators are given. No references are cited.

Institution : --

Submitted : --

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A.P.

USSR/ Chemistry - Analysis

Card : 1/1

Authors : Terentyev, A. P., Butskus, P. F., and Yashunskiy, V. G.

Title : Determination of acrylonitrile with the aid of the cyanethylation reaction

Periodical : Zhur. Anal. Khim., 9, Ed. 3, 162 - 165, May-June 1954

Abstract : Investigations conducted on the cyanethylation of alpha-amino acid derivatives led to the development of a new method for the determination of acrylonitriles, based on the reaction of the latter with glycol. The apparature employed in connection with this new analysis method is described. The new analysis method makes it possible to determine acrylonitrile in colored mixtures containing water and ethylenecyanohydrin with an accuracy of up to ± 1%. Eleven references: 3-USSR, 6-USA, 2-English. Table; drawing.

Institution : The M. V. Lomonosov State University, Moscow

Submitted : Jan. 13, 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

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TERENT'YEV, A.P.

AID P - 1120

Subject : USSR/Chemistry

Card 1/1 Pub. 119 - 3/5

Authors : Terent'yev, A. P. and Yanovskaya, L. A. (Moscow)

Title : Methods of synthesizing compounds of the pyrrole series

Periodical : Usp. khim., 23, no. 6, 697-736, 1954

Abstract : An extensive review on the preparation of pyrrole compounds by condensation and cyclization of aliphatic compounds and by conversion of heterocyclic compounds is given. The review is based principally on non-Russian sources. 346 references (51 Russian: 1884-1953).

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A P.

USSR/Chemistry - Reduction processes

Card 1/1 Pub. 151 - 20/38

Authors : Terentyev, A. P., and Yashunskiy, V. G.

Title : Study of gamma-dinitrile reduction according to the Vishnegrad method

Periodical : Zhur. ob. khim. 24/2, 291-298, Feb 1954

Abstract : It was found that the Vishnegrad method of reducing nitriles with Na in alcohol can be successfully utilized for the synthesis of certain hardly-accessible cyclic nitrous bases. The conditions and factors affecting the process of cyclization, which is usually followed by the formation of piperidine, was investigated during the reduction dinitrile with glutaric acid in alcohol. Experiments showed that dinitriles of alpha-methyl- and alpha-phenylglutaric acids offer greater yields of cyclic products than non-substituted dinitrile. A method determining the piperidine and ammonia contents in a pentamethylenediamine mixture is described. Fifteen references: 10-USSR; 3-German and 2-USA (1885-1953). Tables; graphs.

Institution : ...

Submitted : July 13, 1953

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A. P.

USSR/Chemistry - Sulfonation

Card : 1/1

Authors : Terentyev, A. P., and Grinev, A. N.

Title : Investigation of quinones. Part 1. - Sulfonation of quinones

Periodical : Zhur. Ob. Khim., 24, Ed. 6, 1049 - 1058, June 1954

Abstract : Typical quinones, which submit to intensive resinification during the effect of conventional sulfonating agents, were thoroughly sulfonated with dioxanesulfonictrioxide. Sulfonation of p-benzoquinones results in formation of oxyhydroquinone-sulfonic and oxyhydroquinonedisulfonic acids; sulfonation of toluquinone brings methyloxyhydroquinone-sulfonic and methyloxyhydroquinone-disulfonic acids; acids obtained from sulfonation of other quinone compounds are described. Sulfonation proceeds through the intermediate formation of dioxanesulfonictrioxide. Twenty-one references; 1 Russian since 1838, German since 1860. Graph.

Institution : The M. V. Lomonosov State University, Moscow

Submitted : December 3, 1953

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A. P.

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Bromination with dioxane dibromide. III. Bromination of aromatic hydrocarbons and heterocycles. New method of iodination with the aid of the complex of iodine monochloride with dioxane. A. P. Terent'ev, L. I. Belen'kii, and L. A. Vanovskaya. J. Gen. Chem. U.S.S.R. 24, 1251-5(1954)(Engl. translation).—See C.A. 49, 12327d.

B. M. R.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

USSR/ Chemistry Bromination

Card : 1/1 Pub. 151 - 34/35

Authors : Terentyev, A. P., Belen'kiy, L. I. and Yanovskaya, L. A.

Title : Bromination with dioxane dibromide. Part 3.- Bromination of aromatic hydrocarbons and heterocycles. New method of iodizing by means of an iodine chloride-dioxane complex.

Periodical : Zhur. ob. khim. 24, Ed. 7, 1265 - 1271, July 1954

Abstract : The results obtained by using dioxane dibromide for bromination of aromatic hydrocarbons and some heterocyclic compounds as well as aromatic amines, are analyzed. Data are also presented on the application of a new iodizing agent - iodine chloride-dioxane complex- for the iodization of phenols and some indoles. Five USSR, 1 USA and 3 German references.

Institution : State University, Moscow

Submitted : January 28, 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENTYEV, A. P.

USSR/ Chemistry Synthesis methods

Card : 1/1 Pub. 151 - 25/33

Authors : Terentyev, A. P., Grinev, A. N., and Terentyev, A. B.

Title : Investigation of quinones. Part 2.- Synthesis of chloro- and bromo-substituted hydroquinones by the reaction of HBr and HCl ester solutions with quinones

Periodical : Zhur. ob. khim. 24/8, 1433 - 1435, August 1954

Abstract : A new method for the synthesis of Cl- and Br-hydroquinones as a product of reaction between quinones and HBr- and HCl- ester solutions, is presented. Various results obtained through the application of the new synthesis method, are shown in table. Thirteen references: 7 German; 5 USA and 1 Polish (1844 - 1950).

Institution : State University, Moscow

Submitted : March 8, 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'EV, A. P.

62

Quinones. III. Synthesis of substituted benzodifurans by the reaction of *p*-benzoquinone and toluquinone with acetoacetic ester. A. P. Terent'ev, A. N. Grinev, and Pan Bon-Khvar (Moscow State Univ.). *Zhur. Obshchei Khim.* 24, 2050-1(1954); cf. *C.A.* 49, 12353c.—To 28 g. $ZnCl_2$ in 28 g. abs. EtOH was added 39 g. $AcCH_2CO_2Et$, followed by addn. over 5–10 min. with external heating of 21 g. *p*-benzoquinone. After stirring 45 min. on a steam bath and standing several hrs. at room temp. the mixt. yielded 70% *di-Et 2,6-dimethylbenzo[1,2-b, 4,5-b']difuran-3,7-dicarboxylate*, m. 184° while the mother liquor gave 4.5 g. benzofuran deriv., m. 137° (cf. Pechmann, *Ber.* 21, 3005(1888); [illegible] and Levy, *Ann.* 283, 245(1894)). Hydrolysis of the above ester with alc. NaOH gave the free dicarboxylic acid, which (2 g.) heated with 4.5 g. quinoline and 0.1 g. CuO 2 hrs. at 240–2° gave 1.2 g. pure *2,6-dimethylbenzo[1,2-b, 4,5-b']difuran*, m. 113–14° (from EtOH). Similar reaction of toluquinone with $AcCH_2CO_2Et$ gave 60% *di-Et 2,4,6-trimethylbenzo[1,2-b, 4,5-b']difuran-3,7-dicarboxylate*, m. 120–2°, along with 1 g. benzofuran deriv., m. 173° (cf. above refs.). Hydrolysis of the ester gave the free acid which heated with quinoline and CuO as above gave from 0.7 g. acid 0.3 g.

2,4,6-trimethylbenzo[1,2-b, 4,5-b']difuran, m. 70–1.5° (from EtOH).

G. M. Kosolapoff

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TERENT'YEV, A.P.; KOST, A.N.; TSUKERMAN, A.M.; POTAPOV. V.M.; SERGEYEV, P.G., professor, redaktor; STRUCHKOV, Yu.T., redaktor; MOSKVICHEVA, N.I., tekhnicheskiy redaktor.

[Nomenclature of organic compounds; survey, criticism, proposals] Nomenklatura organicheskikh soedinenii; obzor, kritika, predlozhenia. Moskva, Izd-vo Akademii nauk SSSR, 1955. 302 p. (MLRA 8:12)
(Chemistry, Organic--Nomenclature)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

USSR/Chemistry - Nomenclature TERENT'YEV, A.P. FD-[illegible]

Card 1/1 : Pub. 129-8/25

Author : Terent'yev, A. P.; Kost, A. N.; Tsukerman, A. M.

Title : A new system of numbering atoms in condensed cyclic structures

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, Vol. 10 69-76. Feb 1955

Abstract : Proposes a new system for numbering condensed cyclic molecules which depends on the structure of the compound and therefore can be used for both carbo- and heterocyclic structures. The atoms in the condensed cyclic structures are divided into four classes depending on whether they are non-junctional, junctional, junctional with three structural atoms, or junctional with four structural atoms. Diagrams; eight references (one USSR).

Institution : Chair of Organic Chemistry

Submitted : April 14, 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

TERENT'YEV, A.P.

Systematic nomenclature of organic compounds. A. P. Terent'ev, V. M. Potapov, A. N. Kost, and A. M. Tankerman. *Vestnik Moskov. Univ.* 10, No. 6, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 4, 97-134(1955).—A new general system of nomenclature is proposed applicable to the naming of customary compounds; consideration of geometric and optical isomers is given. John Howe Scott

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6

GRINEV, A.N.; FROSIN, V.N.; TERENT'YEV, A.P.

Investigation in the field of quinones. Part 4. Synthesis of substituted naphthofurans. Zhur.ob.khim. 25 no.3:523-526 Mr '55 (MLRA 8:6)

1. Moskovskiy Gosudarstvennyy universitet
(Naphthofuran)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755330001-6"

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TERENT'YEV, A P.

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Quinone series. V. Synthesis of some substituted indoles and benzindoles. A. N. Grinev, N. K. Kul'bovskaya, and A. P. Terent'ev (Moscow State Univ.). *Zhur. Obshchei Khim.* 29, 1355-7 (1959); cf. *C.A.* 49, 13959g; 50, 3984e.—Heating 27.5 g. *p*-benzoquinone and 65 g. MeC(NH$_2$):CHCO$_2$Et in Me$_2$CO 2 hrs. at reflux gave 30% *Et 2-methyl-5-hydroxyindole-3-carboxylate*, m. 205°. The use of 1,4-naphthoquinone gave 56% *Et III-2-methyl-5-hydroxybenz[g]indole-3-carboxylate*, m. 264-5°. Chloro-*p*-benzoquinone gave 16.5% *Et x-chloro-2-methyl-5-hydroxyindole-3-carboxylate*, m. [illegible]° (from Me$_2$CO). Similarly, 1.55 g. *p*-benzoquinone 4.1 g. MeC(NHMe):CHCO$_2$Et in Me$_2$CO gave 48% *Et 1,2-dimethyl-5-hydroxyindole-3-carboxylate*, m. 207-8° (from Me$_2$CO), while 1,4-benzoquinone in this case gave 51% *Et III-1,2-dimethyl-5-hydroxybenz[g]indole-3-carboxylate*, m. 279-80° (from Me$_2$CO). G. M. Kosolapoff.

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Syntheses with acrylonitrile. XXI. Synthesis and properties of 1-indolepropionic acids. A. P. Terent'ev, A. N. Kost, and V. A. Smit (State Univ., Moscow). *Zhur. Obshchei Khim.* 25, 1959 66(1955); cf. *C.A.* 47, 12237h. — It was shown that the 2-cyanoethyl group can be cleaved from indole ring if it is located in 1-position; the mol. is stable if the group is in the 3-position. To a stirred mixt. of 11.7 g. indole, 10.6 g. $CH_2{:}CHCN$ (Ia), and 70 ml. C_6H_6 was added 0.6 g. powd. KOH (exothermic reaction) and after 1–2 hrs. the mixt. was filtered and distd. yielding 95% *1-indolepropionitrile*, b_1 168–80°, m. 47°. Refluxed with 10% KOH 3 hrs. it gave 95% *1-indolepropionic acid* (I), m. 85–6° (crude), m. 90–1° (from aq. EtOH-HCl). Heating 11.7 g. indole, 8 g. ethylene cyanohydrin, and 6 g. solid KOH in 100 ml. 95% EtOH in autoclave 6 hrs. at 190–200° gave 62% I; NaOH gave a 41% yield; the best yield was 90% attained with KOH in 6 hrs. at 225°. Similar reaction using $EtOCH_2CH_2CN$ gave a 47% yield in 6 hrs. at 200°; in refluxing C_6H_6 only a 12% yield was obtained. The autoclave reaction as above of indole and $Me_2NCH_2CH_2CN$ with solid KOH in 95% EtOH gave 53% I; only 15% was obtained in refluxing xylene. Stirring 3.9 g. 2-methylindole, 3.4 g. Ia, 0.2 g. powd. KOH and 15 ml. C_6H_6 1 hr. at room temp. and 1 hr. at reflux gave 77% *2-methyl-1-indolepropionitrile*, m. 83°, b_1 170–80°; hydrolysis with KOH gave *2-methyl-1-indolepropionic acid*, m. 111–12°. Similar reaction of 34 g. 3-indolylacetonitrile (II) and 21.2 g. Ia with powd. KOH in C_6H_6 gave 97% *1,3-indolebispropionitrile*, (III), m. 83–9° (crude), m. 96–7° (from EtOH); hydrolysis with 10% KOH gave the free *dicarboxylic acid*, m. 146° (from aq. EtOH). Similar condensation of 2-methyl-3-indolylacetonitrile with Ia gave 84% *2-methyl-1,3-indolebispropionitrile*, m. 141–5° (from EtOH), which gave [illegible] *dicarboxylic acid*, m. 125° (from H_2O). [illegible] *Z.* EtO$_2$CCH:CH$_2$ and 0.3 g. powd. KOH [illegible] room temp. in 25 ml. C_6H_6, then refluxed [illegible] *Et 1-indolepropionate*, b_1 145–50°, which [illegible] in 85–6%; this cleaves with concentrated [illegible] Similarly 1,3-indolebispropionic acid [illegible] steam at 250° gave 3-indolepropionic acid with [illegible] with a little hydroquinone under N_2 at 250° gave 92% (I, m. 61°; refluxing I with 50% KOH 8 hrs. in NH_3 stream gave no indole and nearly all acid was recovered. However similar treatment of 1-indolepropionitrile gave about 10% indole and 80% I. XXII. New method of synthesis of pyrrolines. A. P. Terent'ev, A. N. Kost, and A. M. Berlin. *Ibid.* 1613–16.—To 91.2 g. iso-Pr_2CO and EtONa (0.6 g. Na in 10 ml. EtOH), heated on a steam bath, was added 21.2 g. $CH_2{:}CHCN$ and, heated 4.5 hrs. longer, the mixt. after neutralization with H_2SO_4 gave 46% *γ-methyl-γ-isobutylvaleronitrile*, b_4 106–8°, b_1 116–18°, n_D^{20} 1.4132, d_{20} 0.9222; this (15 g.) in 300 ml. 3% H_2O_2, 5 ml. 6N NaOH and EtOH to form a clear soln. was heated 6 hrs. at 50–60°, neutralized and evapd. yielding 89% *γ-methyl-γ-isobutylvaleramide* (I), m. 90° (from C_6H_6). Similarly cyanoethylation of isobutyrophenone gave *γ-methyl-γ-benzoylvaleronitrile*, $b_{0.4}$ 159–61°, n_D^{20} 1.5200, d_{20} 1.0469, which hydrolyzed as above to 93.5% *γ-methyl-γ-benzoylvaleramide* (II), m. 145° (from H_2O). To 23 g. NaOH in 300 ml. H_2O at −3° was added 6.5 ml. Br followed by 14.2 g. I and after 2 hrs. on a steam bath and addn. of NaOH there was isolated 70% *3,3-dimethyl-2-isopropyl-2-pyrroline*, b_{760} 157–8°, n_D^{20} 1.4471, d_{20} 0.8340, which causes headaches on inhalation and eye irritation; *picrate*, decomp. 189°; *styphnate*, m. 184°; *flavianate*, an oil; *N-benzenesulfonyl deriv.*, oil; *N-phenylcarbamide deriv.*, $C_{15}H_{22}N_2O$, m. 203°. Similarly II gave 58% *3,3-dimethyl-2-phenylpyrroline*, b_{10} 119–21°, n_D^{20} 1.5440, d_{20} 0.9983; *picrate*, m. 160°; *N-phenylcarbamide*, m. 230°.

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TERENT'YEV, A.P.; KOST, A.N.; BERLIN, A.M.

Syntheses with the aid of acrylic acid nitrile. Part 22. New method for the synthesis of pyrrolines. Zhur. ob.khim. 25 no.8:1613-1616 Ag '55. (MLRA 9:2)

1. Moskovskiy gosudarstvennyy universitet.
(Pyrroline) (Nitriles)

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TERENT'YEV, A.P.

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Quinones. VI. Preparation of chloro- and bromoquinones by oxidation of chloro- o. bromo substituted hydroquinones. A. N. Grinev and A. P. Terent'ev (State Univ., Moscow). *Zhur. Obshchei Khim.* 28, 2445-6(1955); cf. C.A. 39, 1233c, 50, 4980g.—To 30 g. chlorohydroquinone in 180 ml. H_2O was added 15 ml. N H_2SO_4 and 12.6 g. $KBrO_3$ in 120 ml. H_2O, stirring at 60-2° until the oily layer turned yellow, gave 87.5% *chloro-p-benzoquinone*, m. 56-7°. Addn. of 2.5 ml. N H_2SO_4 and 2.1 g. $KBrO_3$ in 20 ml. H_2O to 6 g. 2,5-dichlorohydroquinone in 70 ml. H_2O and 20 ml. dioxane, at 70-5° gave similarly 94% *2,5-dichloro-p-benzoquinone*, m. 159-60°. Similarly 85-90% yields of bromo-2,5-dichloro- and 2,6-dibromoquinones were obtained.

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TERENT'YEV, A.P.; POTAPOV, V.M.

Optically active substances in the laboratory and in nature. Priroda 44 no.5:37-44 My '55. (MIRA 8:7)

1. Chlen-korrespondent Akademii nauk SSSR (for Terent'yev)
(Optical rotation) (Stereochemistry)

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TERENT'YEV, A.P.; POTAPOV, V.M.

At the international chemical congress in Zürich. Priroda 44 no.12:42-47 D '55. (MLRA 9:1)

1.Chlen-korrespondent Akademii nauk SSSR, (for Terent'yev).
(Zürich--Chemistry--Congresses)

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SAVUSHKINA,V.I.; SYAVTSILLO,S.V.; TERENT'YEV,A.P.

Radiocarbon tracer rings used for studying toluene and benzene synthesis. Dokl. AN SSSR 102 no.6:1139-1142 Je'55.
(MLRA 8:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Terent'yev)
(Toluene) (Benzene) (Carbon--Isotopes)

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USSR/ Chemistry - Catalytic oxidation

Card 1/1 Pub. 22 - 24/46

Authors : Terentyev, A. P., Memb. Corres., Acad. of Sc., USSR, and Mogilyanskiy, Ya. D.

Title : Catalytic autoxidation of primary aromatic amines in the presence of the pyridine-cuprous chloride complex

Periodical : Dok. AN SSSR 103/1, 91-93, Jul 1, 1955

Abstract : It was established that the oxidation with atmospheric air of gaseous oxygen of various aromatic amines into homologous azo compounds is the major part of the reaction occurring in a pyridine solution in the presence of cuprous chloride. The effective and most active agent in this reaction was found to be a complex formed by the pyridine and the cuprous chloride. The catalytic reaction with this complex is possible in many other inert solvents but is absolutely impossible when the cuprous chloride is replaced by other salts. Four references: 2 USSR and 2 Germ. (1888-1945).

Institution : Moscow State University im. M. V. Lomonosov

Submitted : February 15, 1955

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GRINEV, A.N.; PAN BONG-HWAL; TERENT'YEV, A.P.

Preparation of benzodifuran and benzofuran derivatives by using the interaction of n-benzoquinone and toluquinone with benzoyl ethyl acetate. Vest.Mosk.un.11 no.2:91-93 F '56. (MLRA 9:8)

1. Laboratoriya imeni akademika S.S. Nametkina.
(Benzofuran) (Benzodifuran)

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TERENT'YEV A.P.

TOPCHIYEVA, K.V.; PESHKOVA, V.M.; SHAKHOVA, Z.F.; ALIMARIN, I.P.; NOVOSELOVA, A.V.; SPITSYN, V.I.; LUTSENKO, I.F.; GERASIMOV, Ya.I.; NESMEYANOV, A.N.; TERENT'YEV, A.P.; POTAPOV, V.M.; GIBALO, I.M.

E.S. Przheval'skii; obituary. Vest. Mosk. un. Ser. mat. mekh., astron., fiz., khim. 11 no.2:205-207 '56. (MIRA 10:12)
(Przheval'skii, Evgenii Stepanovich, 1879-1956)

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