

FILE NAME: Chemical Abstracts (CHAB)

DATE: 1968

DOC#: CHAB057

OCUMENT DESCRIPTION: Abstract Originally Published in 1964 by Buchanan and Holt, 1963

acid and depressed basal levels of methionine (I), leucine (II), isoleucine (III), and valine (IV). A significant neg. correlation was found between the glutamine (V) content of the free amino acid pool in the plasma of the alcoholics and the content of II, III, IV, alanine, and phenylalanine. Following EtOH loading only the control group showed elevation of the V content of the free amino acid pool in plasma; elevation of proline, I, II, and III levels was found in the alcoholics. The hypothesis suggested by these findings is that a block in the V synthetase system exists in alcoholics. They apparently derive their endogenous V from another pathway, the keto acid analog of V. Katherine H. Fisher

Fatal panmyelophthisis converting to subacute myelosis caused by benzene. Jirina Jindrichova, Vladimir Vortel, Antonin Fingerland, Karel Jindrak, and Ladislav Chrobak (Krajsky Ustav Narodniho Zdravi, Hradec Kralove, Czech.). *Vnitřní Lékar.* 11(10), 995-9(1965)(Czech). Chronic C_6H_6 poisoning was studied in a cobbler who had handled C_6H_6 -contg. glues for many years. Prior to death, the signs of panmyelophthisis were accompanied by considerable hepatosplenomegaly and the appearance of young unripe blood cells in peripheral blood. After death, polarographic analysis of the blood, liver, spleen, brain, and bone marrow disclosed curves closely resembling those of C_6H_6 . Other fatal cases of C_6H_6 poisoning are discussed.

Renal functional response to hydrazine and 1,1-dimethylhydrazine. Edward T. Wong (U.S. Air Force School of Aerospace Med., Brooks Air Force Base, San Antonio, Tex.). *Toxicol. Appl. Pharmacol.* 8(1), 51-6(1966)(Eng). Intravenous hydrazine possesses a nephrotoxicity manifested by acute redns. in glomerular filtration rate and max. rate of renal tubular reabsorption of glucose in dogs. 1,1-Dimethylhydrazine does not have any adverse renal effect that is reflected in alterations in the same parameters. RCZB

Subcellular distribution of fluoride in navel orange leaves. Chong W. Chang and C. Ray Thompson (Univ. of California, Riverside). *Air Water Pollution* 9(11), 685-91(1965)(Eng). Tissue from leaves grown in F-contaminated atm. was homogenized and fractionated by differential centrifugation in a sucrose soln. Occurrence of F was in decreasing order in the following fractions: cell wall, chloroplasts, H_2O -sol. protein, and mitochondria. Because of cross-contamination of chloroplast fragments and protein in the various fractions it was assumed that F actually accumulated in chloroplasts to a greater extent than in the cell wall. Almost 60% of the total F in the homogenate was in the supernatant fraction. Negligible amts. of F were found in org. acids and sugars. C. K. Horner

The biotransformation of o-tolidine. A qualitative investigation. H. M. L. Dieteren (Lab. N. V. Gamma, Borgharen, Neth.). *Arch. Environ. Health* 12(1), 30-2(1966)(Eng). It was demonstrated colorimetrically that men exposed to o-tolidine excreted unchanged o-tolidine and diacetyl-o-tolidine. The presence of a hydroxyamino compd. was indicated by the nitrous acid test of Sciari and Meigs (CA 53, 15382d) and the product was tentatively identified as 5-hydroxy-o-tolidine. Although it could not be demonstrated in this expt., monoacetyl-o-tolidine is a possible product. The metabolism of o-tolidine is thus very similar to that of benzidine in the human. 16 references. BFJN

Iron metabolism during prophylactic saturation with $CaNa_2$ EDTA, as measured by ^{59}Fe uptake. J. Sroczyński, G. Jondarko, and J. Watras. *Arch. Maladies Prof. Med. Trav. Securite Sociale* 26(9), 465-74(1965)(Fr). The turnover of Fe was studied during prophylactic administration of $CaNa_2$ EDTA to Pb-poisoned animals. Plasma Fe turnover, erythrocyte counts, and hemoglobin content indicated that hemolysis occurred in Pb intoxication, with a probable inhibition of Fe incorporation into protoporphyrins. The prophylactic ability of EDTA probably involved the complexing of Pb, thereby inhibiting hemolysis and inactivating enzymes responsible for fixation of the metal in tissues. Carl B. Monroe

Histochemical characterization of some energy metabolism enzymes in the process of experimental silicotic connective tissue formation. I. M. Shnaidman. (Inst. Exptl. and Clin. Oncol., Karaganda). *Arkhh. Patol.* 27(11), 34-40(1965)(Russ). Activity of redox enzymes (I) in connective tissue cells of silicotic nodules in exptl. silicosis evoked by intratracheal application of quartz dust was investigated. At the early stage of silicosis, e.g. 1-3 weeks after the quartz application, a high activity of I was found. DPN diaphorase, lactic acid dehydrogenase, glycerophosphate dehydrogenase, and malic acid dehydrogenase were most active. The activities of isocitric dehydrogenase and succinic dehydrogenase were lower and the lowest were glucose-6-phosphate dehydrogenase and TPN diaphorase. As development of silicotic nodules advanced, the activity of I decreased until they completely disappeared. Development of pathol. collagen fibers in silicosis is assocd. with changes in I activity. L. Rexova

The metabolism of cells [rat and guinea pig macrophages] phagocytizing dusts. Paul Gerhard Munder and Herbert Fischer

Zentr. Bakter.-Forsch., Sonderband. 6, 93-103(1963)(Pub. 1965)(Ger). Previous work showed that the O uptake of cells was not immediately inhibited by their phagocytosis of silicogenic dusts. New expts. using lung and peritoneal cavity macrophages showed that the phagocytosis of quartz glass, tridymite, or 2 forms of silicic acid only gradually slowed the O uptake of the cells. The results varied, depending on whether or not the cells were incubated with the various dusts for 3, 7, or 10 hrs. previously. Tridymite produced certain cell lesions which differed from those produced by glass. Certain inert dusts did not injure the phagocytizing cells. The inhibition of lactic acid (I) formation in phagocytizing tridymite paralleled the production of cell lesions by tridymite. For both peritoneal and pulmonary macrophages, detns. of I indicated an inhibition of glycolysis (after several hrs.) which paralleled inhibition of cell respiration. In some cases, the inhibition of I formation occurred only after 3 days in phagocytosis of tridymite or glass. This effect probably resulted from the tendency of dispersed macrophages in the cultures to gradually assume histiocyte-like forms. These forms had diminished phagocytic powers. The change in the cells was reversible. If traces of lysolecithin (II) were added to the cell cultures, the cells regained their ability to act as strong phagocytes. This result was attributed to the action of II on interfacial tensions in the cells. The action of II probably also occurs *in vivo*. W. C. Tobie

The association of certain cancers with asbestosis. W. D. Buchanan. *Intern. Congr. Occupational Health, 14th, Madrid 1963(2)*, 617-19(Pub. 1964)(Eng). Persons with asbestosis have a 10-fold greater risk of developing lung cancer than the remainder of the population. In Great Britain, chrysotile, crocidolite (I), and amosite (II) are the main types of asbestos used. Both I and II contain Fe. In North America, I and II are less used and the assocn. with cancer is less evident. There is some evidence that pulmonary siderosis from Fe may be a factor in lung cancer. It is possible that I and II contain in common some compd. of Fe acting as a carcinogen. W. C. Tobie

[Increased] excretion of δ -aminolevulinic acid produced by the action of lead. H. Gattner (Univ. Freiburg/B., Ger.). *Intern. Congr. Occupational Health, 14th, Madrid 1963(2)*, 633-4(Pub. 1964)(Ger). The levels of δ -aminolevulinic acid (I) were detd. in the urine of normal persons and those exposed to Pb, as in the printing trades and the manuf. of $Pb-H_2SO_4$ storage batteries. Normal persons excreted about 1000 γ I/day. With 2000-3000 γ /24 hrs., pathol. action of Pb was probable, and at higher excretion rates it was confirmed. Pb interfered with the enzymic processes by which I was converted to porphyrins. The resulting I which accumulated was thus excreted in the urine. The amt. of urinary I excreted paralleled the excretion of Pb in the urine. Pb also interfered with the enzymic conversion of porphyrins (normally derived from I) into hemoglobin. The detn. of excess urinary I excretion was a more sensitive test for Pb poisoning than detns. of basophilia. Detns. of higher intermediates in the biosynthesis of hemoglobin were also of confirmatory value. Detns. of creatinine output were of little value as indexes of the toxic action of Pb. Thus, increased urinary I excretion was highly specific for the toxic action of Pb in the body. W. C. Tobie

New investigations in the histopathology of pulmonary silicosis. J. Abello (Inst. Nacl. Med. Higiene Seguridad Trabajo, Madrid). *Intern. Congr. Occupational Health, 14th, Madrid 1963(2)*, 654-66(Pub. 1964)(Span). Pathol. and biochem. changes in silicotic lesions are interpreted. Changes produced by injecting SiO_2 suspensions into the femoral artery of dogs are described. Suspensions of SiO_2 in serum produce much greater tissue reactions if subdivided by the action of ultrasonic vibrations. The tissue reactions to SiO_2 are promoted by the hyaluronidase (I) which is present, so that the rapidity with which the lesions develop is proportional to I concns. Degenerated and hyalinized protoplasm of smooth muscle fibers participate in the formation of silicotic nodules. The formation of such nodules in the reaction of the lungs of dogs to SiO_2 is described. The irritating action of SiO_2 on normal collagenous fibers appears to result in the production of a collagen- SiO_2 complex which is involved in nodule formation. In human silicosis, the changes are rendered less definite owing to treatment with antibiotics such as streptomycin and other antitubercular drugs. In dogs, silicotic pulmonary changes were modified by the use of exogenous I in conjunction with SiO_2 . W. C. Tobie

Experimental asbestosis in guinea pigs. P. F. Holt and J. Mills (Univ. Reading, Engl.). *Intern. Congr. Occupational Health, 14th, Madrid 1963(2)*, 667-70(Pub. 1964)(Eng). Forms of asbestos of differing phys. and chem. compn. inhaled by guinea pigs gave different pathol. pulmonary reactions. Multinuclear giant cells in a reticulin (I) mesh appeared. Later, groups of macrophages appeared in a collagen (II) capsule and II replaced I. Lung sections treated with ferrocyanide soln. stained blue, showing Fe in the protein coatings of the asbestos. Differences in the effects of inhaled crocidolite and chrysotile are considered. W. C. Tobie