BIBLIOGRAFIA LATINOAMERICANA

ARGENTINA

Determinación de Ag, Cu, Pb, Sn, Fe, Ca, Zno, Mg, K, y Mn por espectrofotometría de absorción atómica en conservas de tomates. —C. Acatini, S. N. Berman, O. de Colombo, O. Fondo. (Laboratorio de Investigaciones y Contraverificaciones, Dirección General de Saneamiento. Municipalidad de la Ciudad de Buenos Aires). Rev. de la Asociación Bioquímica Argentina. 40, 175-183, 1975.

Vistos los límites establecidos en el Código Alimentario Argentino para algunos elementos (Ag, Cu, Pb, Sn, Sb, Zn) y la sensibilidad hallada en determinaciones por espectrofotometría de absorción atómica, de esos y otros elementos que consideramos de valor en los análisis de alimentos, se los agrupó de la siguiente manera:

1º grupo: Ag, Cu, Pb, Sn, Sb, Fe, Mn.

2º grupo: K.

3º grupo: Ca, Zn.

4º grupo: Mg.

Se trabajó sobre conserva de tomate. La muestra se licúa y homogeiniza, se le agrega HCl, se centrifuga y se filtra; en ella se determinan los elementos del primer grupo. Para los del segundo se la diluye al décimo. Para determinar los del tercer grupo se pesa 1 g de tomate, se le agrega soluciones de EDTA y Sr, se lleva a 100 ml con agua destilada y se filtra. Para los del cuarto grupo se usa esta solución diluida al décimo y con agregado de EDTA y Sr.

Para minimizar las interferencias físicas y químicas se trabaja utilizando como matriz tomate en condiciones semejantes al envasado al que se le agregan los standards y se traza la curva de calibración de cada elemento.

Se mencionan las condiciones más favorables para la determinación de cada uno de los elementos, la sensibilidad hallada y la precisión del método.

The effect of fat deprivation on the allosteric inhibition by fluoride of the (Mg^{2+})-ATPase and ($Na^+ + K^+$)-ATPase from rat erythrocytes.—Ricardo N. Farías, Adriana L. Goldemberg and Raúl E. Trucco. (Departamento de Química Biológica, Instituto de Ciencias Químicas, Ciudad Universitaria, Córdoba, Argentina). Archives of Biochemistry and Biophysics, 139, 38-44. 1970.

It has been found that the ATPases (ATP phosphohydrolase, EC 3.6.1.3) from rat erythrocytes are inhibited by P^-.

Allisteric type of kinetics with $n = 2.1$ for the (Mg^{2+})-ATPase and 2.8 for the ($Na^+ + K^+$)-ATPase have been obtained for the inhibition by P^-.

In animals fed fat-deficient diet the value of n for the (Mg^{2+}). ATPase changed from 2.1 to 1.4 and for the ($Na^+ + h^+$)-ATPase from 2.7 to 1.5. When these animals were then fed fat-sufficient diet the value of n increased to the normal values.

The possibility that changes in the unsaturated fatty acid composition of the erythrocyte membrane were responsible for the changes in the value of n is discussed.

Allosteric changes of p-nitrophenylphosphatase from rat erythrocytes in fat deficiency.—Adriana L. Goldemberg, Ricardo N. Farías and Raúl E. Trucco. (Departamento de Química Biológica, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Ciudad Universitaria, Córdoba, Argentina). The Journal of Biological Chemistry, 247, 4299-40304. 1972.

The kinetic properties of the p-nitrophenylphosphatase of red cell ghosts from rats fed fat-sufficient and fat-deficient diets were investigated. With this system the enzyme shows hyperbolic saturation curves. In the fat-sufficient case, positive cooperativity with $n<1.5$ for F^- were observed.

Evidence for a different allosteric transition in the p-nitrophenylphosphatase from fat-deficient rats is supported by the following facts: (a) values of $n>1.5$ in F^- inhibition and (b) nonsigmoidal kinetics for k^+ activation with $n<1.5$.

In the activation by H^+, the heterotropic effect of F^- and of the substrate alters the values of n and $K_{0.5}$ in fat-deficient rats but in fact-sufficient rats the corresponding effects is only on the $K_{0.5}$ values.

Arrhenius plots for the p-nitrophenylphosphatase between 7 and 45° showed for the enzyme from fat-sufficient rats an inflection point at 30°; for the p-nitrophenylphosphatase for deficient animals two inflection points were observed, one at 30° and another at 37°.

Evidence is presented showing that in fat-deficient rats the p-nithophenylphosphatase of the red cell ghost has an allosteric transition different from the corresponding controls.

The allosteric transitions from membrane-bound enzymes: Behavior of erythrocyte acetylcholinesterase from fat-deficient rats.—Roberto D. Morero, Bernabé Bloj, Ricardo N. Farías and Raúl E. Trucco. (Instituto de Química Biológica, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán, Chacabuco 461, San Miguel de Tucumán, Tucumán, Argentina). Biochimica et Bioyphysica Acta, 282, 157-165. 1972.

The allosteric behavior of acetylcholinesterase (acetylcholine hydrolase, E.C 3.1.1.7) from red cell ghosts of rats fed fat-sufficient and fat-deficient diets was investigated. Allosteric type kinetics with $n = 1.6$ have been obtained for the inhibition by F^- in rats fed a fat-sufficient diet. In animals fed a fat-deficient diet the values of n changed from 1.6 to 1.0. When these animals were then fed a fat-sufficient diet the values of n shifted from 1.0 to 1.6. This in vivo reversion was obtained after 8 days of refeeding. Two types of changes in the values of n were obtained in vitro in fat-deficient rats: (1) from 1.0 to 1.6 by solubilization of the membrane-bound enzyme with Triton X-100, (2) from 1.6 to 1.0 by reconstitution of the membrane-like structure from the soluble enzymatic preparation. The possibility that the structure of the membrane could be responsible for the changes in the phenomenon of phenotypic allosteric desensitization in the membrane-bound enzymes is discussed.

Allosteric transitions and membrane-bound ATPase from rat tissues: The effect of rat deprivation on the allosteric inhibition by fluoride.—Adriana L. Goldemberg, Ricardo N. Farias and Raúl E. Trucco. (Departamento de Química Biológica, Laboratorio de Microbiología, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Córdoba, Argentina). Biochimica et Biophysica Acta, 191, 489-493. 1973.

In rats fed a fat-sufficient diet, ATPases (ATP phosphohydrolase, EC 3.6.1.3) from heart, kidney and brain microsomes showed allosteric kinetics for the inhibition by F^-, with values of $n = 2.0$. In rats fed a fat-free diet, the values of n for the ATPases changed from 2.0 to 1.0 in heart and kidney microsomes. When these animals were then fed a fat-sufficient diet the values of n reached the control values. In brain microsomal ATPases no modification of the values of n were found between both groups of animals. The regulatory properties of the membrane on bound ATPases are discussed.

Membrane lipid fatty acids and regulation of membrane-bound enzymes. Allosteric behaviour of erythrocyte Mg^{2+}-ATPase ($Na^+ + K^+$)-ATPase and acetylcholinesterase from rats fed different fat-supplemented diets.—Bernabé Bloj, Roberto D. Morero, Ricardo N. Farias and Raúl E. Trucco. (Instituto de Química Biológica, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán, Chacabuco 461, San Miguel de Tucumán, Tucumán, Argentina, and Laboratorio de Microbiología Industrial, De-

partamento de Tecnología Farmacéutica, Facultad de Farmacia y Bioquímica, Universidad Nacional de Buenos Aires, Junín 956, Buenos Aires, Argentina). Biochimica et Biophysica Acta, 311, 67-79. 1973.

Studies were carried out to determine the Hill coefficients for the inhibition by F- of the erythrocyte membrane-bound Mg^{2+}-ATPase, $(Na^+ + K^+)$-ATPase and acetylcholinesterase from rats fed with seven different diets. Five groups were fed with different natural fats or oil supplements, one with a hydrogenated fat supplement and the other with fat-free diet. The responses of the red cell fatty acids to dietary fats were recorded. The values of n for the inhibition by F- of the three enzymes revealed a particular and different behaviour in each group. Correlation between the fatty acid compositions of erythrocyte membranes and cooperativity of each enzyme were calculated. The results indicate that neither the essential fatty acid family nor the non-essential ones are particularly involved in the allosteric phenomena. The increase of the double bond index/saturation ratio of fatty acids, which is taken as indicative of membrane fluidity, was accompanied in an inverse manner by changes in allosteric transitions of the $(N^+ + K^+)$-ATPase and acetylcholinesterase, whereas the Mg^{2+}-ATPase was not dependent on this ratio. Diminution of membrane fluidity, carried out by in vitro increase of its cholesterol content, yields confirmatory results of this regulatory mechanism since the value of n for acetylcholinesterase shifted as predicted.

These facts indicate that the membrane fluidity is a physiological regulator for the allosteric behaviour of the membrane-bound enzymes and that each enzyme exhibits a particular behavior in this phenomenon.

Effect of essential fatty acid deficiency on the arrhenius plot of acethycholinesterase from rat erythrocytes.—Bernabé Bloj, Roberto D. Morero and Ricardo N. Farías. (Instituto de Química Biológica, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán, Chacabuco 461, San Miguel de Tucumán, Argentina). Journal of Nutrition, 104, 1265-1272. 1974.

Arrhenius plot of erythrocyte acetylcholinesterase was studied at different pH values in four groups of rats. Two groups were fed EFA-sufficient diets with lard or corn oil as the dietary fat. The other two groups were fed EFA-deficient diets: a basic, fat-free diet, and the same supplemented with hydrogenated beef fat. The Arrhenius plot of membrane-bound acetylcholinesterase from EFA-sufficient animals was found to have a breakpoint about 20° at pH 8.0 with lower activation energy at higher temperatures. The enzyme from EFA-deficient animals exhibited a breakpoint about 28°, the activation energies being lower than that of the enzyme from EFA-sufficient animals above and below this point. Solubilization of the membrane with Triton X-100 led to a shift in the breakpoint and to an increase in the activation energies in the enzyme from EFA-deficient animals. No changes were detected with preparations from EFA-sufficient animals after the treatment. After reconstitution of membrane-like material from the soluble EFA-deficient preparation, the distinctive enzymatic hebavior was restored. The results indicate that the Arrhenius plot of the acetylcholinesterase is changes when the enzyme is bound to an EFA-deficient membrane.

Regulation of allosteric membrane-bound enzymes through changes in membrane lipid composition.—Ricardo N. Farías, Bernabé Bloj, Roberto D. Morero, Faustino Siñeriz and Raúl E. Trucco. (Instituto de Química Biológica, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán, Chacabuco 461, San Miguel de Tucumán and Laboratorio de Microbiología Industrial, Departamento de Tecnología Farmacéutica, Facultad de Farmacia y Bioquímica, Universidad Nacional de Buenos Aires, Junín 956, Buenos Aires, Argentina). Biochimica et Biophysica Acta, 415, 231-251. 1975.

I. Introduction.

II. Effect of fat-free diet on cooperativity of membrane-bound enzymes.

III. Relationship between membrane lipid fluidity and enzyme cooperativity.
  A. Mammalian membranes.
    1. Changes in fatty acid composition.
    2. Changes in cholesterol content.
IV. Some properties of the cooperative enzymes that showed correlation with the membrane lipid fluidity.
  A. Localization.
  B. Dependence on the lipids for enzimatic activity.
V. Influence of membrane integrity for lipid effect on the enzyme cooperativity "Macroeffector".
VI. The application of Hill coefficient measurement as a probe for membrane structure.
  A. Arrhenius plots and Hill plots of the membrane-bound enzymes.
  B. Change of membrane fluidity and Hill coefficient in response to hormone action.
VII. Speculations on the membrane allosteric control.
  A. Possible general nature of membrane allosteric control phenomena.
  B. Specific functions of the enzymes studied.
    1. Acetylcholinesterase.
    2. ATPases associated to vectorial ion-transport systems.
    3. ATPases associated to vectorial electron-transport systems.

La desnutrición: un estudio clínico evolutivo acerca de su prevención y tratamiento en el lactante menor.—Raúl Platero Bastos. (III Cátedra de Pediatría de la Universidad de Buenos Aires). La Semana Médica, 148 (4940), 335-340. 1976.

Se ha realizado un estudio clínico longitudinal con seguimiento por tres meses de 50 lactantes menores desnutridos de todos los grados. Se trató de determinar la cantidad de calorías y proteínas óptimas que se deben indicar en una dieta simple y aceptada por los lactantes desnutridos separados en grupos según el grado y la edad y los incrementos antropométricos correspondientes así como determinar el status laboral, habitacional y sanitario de sus familias. Se realizó la comparación estadística entre los aumentos de peso mensuales según el grado de desnutrición previo y según los tramos de edades estudiadas llegándose a la conclusión en esta serie de que las diferencias no son significativas. Cuanto menor fue la edad del comienzo mejores resultados se obtuvieron y que el tratamiento debe ser proporcionalmente más largo de acuerdo a la edad de capacitación. La ración calórica aceptada por el lactante y la cuota proteica no tuvo en esta casuística las diferencias generalmente mencionadas resultando prácticamente iguales en los tres grupos de edad y en los tres grados de desnutrición. En cuanto a la situación social, laboral y condiciones sanitarias y habitacionales se comprueban en casi todos los casos graves carencias en los tres items, reafirmando en la opinión del autor que la desnutrición del lactante es una enfermedad de la pobreza.

COLOMBIA

Consideraciones sobre alimentos de alto valor nutricional y bajo costo.—Norton Young L. y Teresa Salazar de Buckle. Rev. Inst. Inv. Tecn. Bogotá, Nº 91, 7-17, 1974. 9 Ref.

Contribución al estudio de los métodos analíticos para la determinación de fibra cruda en alimentos concentrados para animales.—Rafael Guzmán. Rev. Inst. Inv. Tecn. Bogotá, Nº 91, 18-31, 1974. 7 Ref.

Comparación de dos métodos para la determinación de residuos de insecticidas en alimentos.—María Inés M. de Cuevas. Rev. Inst. Inv. Tecn. Bogotá, Nº 95, 37-40, 1975. 14 Ref.

Aislado de proteínas a partir de tortas de algodón colombianas.—Teresa Salazar de Buckle y Gloria Silva S. Rev. Inst. Tecn. Bogotá, Nº 95, 17-31, 1975. 14 Ref.

Situación actual del mercado internacional de la carne. La posición de Colombia. — Felipe Carrizosa Restrepo. Rev. Inst. Inv. Tecn. Bogotá, Nº 95, 33-36. 1975.

Molienda fina y clasificación neumática de harina de pulimento de Arroz.—Marco F. Bocanegra y

Jairo A. González S. Rev. Inst. Inv. Tecn. Bogotá, Nº 96, 31-53. 8 Ref.

Contribución de la tecnología al cumplimiento de patrones nutricionales en países en desarrollo. —Teresa Salazar de Buckle. Rev. Inst. Inv. Tecn. Bogotá, Nº 97, 22-45, 1975. 31 Ref.

Factores económicos y sociales relacionados con la sustitución de trigo en pan y pastas.—Jorge A. Beltrán B. Rev. Inst. Inv. Tecn. Bogotá, Nº 97, 8-21. 1975.

El papel de la agroindustria en el mejor aprovechamiento de los recursos alimentarios regionales y el desarrollo económico.—Germán Valenzuela S. Rev. Inst. Inv. Tecn. Bogotá, Nº 97, 66-52. 1975.

Enteropathy in adult protein malnutrition: ultrastructural findings.—Edgar Duque, Hernán Lotero, Oscar Bolaños, and Luis G. Mayoral. (Dept. de Medicina y Patología, Universidad del Valle, Cali, Colombia). Am. J. Clin. Nutr. 28: 914-924. 1975.

As part of a comprehensive study in adult patients with severe primary protein malnutrition, jejunal ultrastructural studies have been perfomed in nine adults in the malnourished state. Malnutrition was severe in all. D-Xylose malabsorption and abnormal fecal fat excretion were present in most. The main ultrastructural abnormalities encountered were: microvillar abnormalities such as shortening, diminished numbers, abnormal positioning, branching, and mesalike fusion of the microvilli; and abnormalities in the lamina propria characterized by deposits of osmiodense material and collagen fibers below the basement membrane of the epithelial cells and of the capillaries. None of the aforementioned findings were noted in our control cases. These ultrastructural alterations of severely malnourished adults are nonspecific, since they have already been described in other enteropathies frequently encountered in the tropics.

Enteropathy in adult protein malnutrition light microscopic findings.—Edgar Duque, Oscar Bolaños, Hernán Lotero and Luis G. Mayoral. (Dept. de Medicina y Patología, Universidad del Valle. Cali, Colombia). Am. J. Clin. Nutr. 28: 901-913. 1975.

Light microscopic evaluation of the intestinal abnormalities seen in 35 severely malnourished adults revealed changes which are common to other well-documented enteropathies. These included shortening, widening and fusion of the villi, lost convolution of the nuclear line, and diminished epithelial cell height. With Masson's trichrome stain, dense material was seen to have accumulated in a subepthelial location in villi (as described in other enteropathies), in crypts, and perivascularly around the capillaries of the lamina propria. Two findings however appear to characterize the severely malnourished state: a consistent modificant reduction of intestinal mucosal thickness, and in many cases atrophy of the crypts. Statistical analysis of the total mucosal thickness data does not justify five but rather three histological categories. With protein repletion as the sole therapeutic modality, 17 patients in which adequate biopsy samples were available at its completion showed significant amelioration of the aforementioned histological abnormalities, as well as normalization of their previous absorptive defects. The mild enteropathy of severe protein malnutrition must be considered in the differential diagnosis of malabsorption in a tropical setting.

Enteropathy in adult protein malnutrition: a review of the Cali experience. — Luis Gi Mayoral, Oscar Bolaños, Hernán Lotero and Edgar Duque. (Dept. de Medicina y Patología, Escuela de Medicina, Universidad del Valle, Cali, Colombia). Am. J. Clin. Nutr. 28: 894-900. 1975.

Since 1964, 41 patients with strictly defined, severe primary (dietetic) protein malnutrition have been studied under metabolic ward conditions during prolonged periods, initially on a low (20 g) and later on a high (100 g) protein diet. Clinical, nutritional, hematological, intestinal absorptive and histological studies were performed in the malnourished state, during and after protein repletion. Classical signs and symptoms of malnutrition, lasting for at least 4 months, were present in most patients. Mild diar-

rhea was frequent. All were normoblastically anemic, hypoproteinemic, and hypocholesterolemic; serum folate values were normal or low but serum B_{12} values were normal or high. Liver biopsy showed fatty liver in the cases where it war performed. Mild malabsorption was detected in over one-half of the patients, with moderate intestinal radiological abnormalities. Malabsorption was independent of concomitant folate deficiency. All the clinical, absorptive and histological abnormalities reversed with treatment consisting only of a high protein diet. In addition to protein lack, another factor has to be invoked in the pathogenesis of the intestinal abnormalities present in severely malnourished adults from rural areas in the tropics.

CUBA

Bocio puberal. Estudio de 30 casos. —Rubén S. Padrón Durán. (Servicio Provincial de Endocrinología y Enfermedades Metabólicas Camagüey). Rev. Cub. Ped. 47: 405-410. 1975.

Se presentan los resultados obtenidos en el estudio de 30 pacientes portadores de bocio puberal. Se destacan el antecedente familiar de tiroidopatía, el predominio en el sexo femenino, la ausencia de síntomas típicos, así como los caracteres del bocio. Insistimos en la utilidad del índice de tirotoxicosis y planteamos la correlación normal entre talla, edad ósea, y edad cronológica. Se hace énfasis en la normalidad del PBI como una prueba más del eutiroidismo de estos pacientes.

Indice energía/proteína: Un nuevo aporte para la evaluación del estado de nutrición. I. Valores en niños sanos de edad preescolar. —Manuel Amador, Jorge Bacallao, Mirta Hermelo, Raúl Hernández y Cristóbal Tolón. (Departamento de Pediatría y Centro de Cibernética, Facultad de Ciencias Médicas, Universidad de La Habana, Cuba).

Se describe un nuevo índice antropométrico (Indice energía/proteína) que relaciona en forma de cociente el pliegue tricipital transformado y el logaritmo$_{10}$ del perímetro muscular braquial. Este índice presenta una escasa variabilidad en niños bien nutridos entre 12 y 59 meses de edad y no está influido en general por el sexo. Los valores medios para este índice, obtenidos en 126 niños fueron de 1.650 ± 0.020 y en 121 niñas, de 1.663 ± 0.018 ($x \pm 1.96\ \sigma\ x$). Igualmente el índice E/P fue calculado a partir de los valores que para el pliegue cutáneo tricipital y el perímetro braquial aparecen en tablas de referencia internacionalmente aceptadas. Se considera que, al relacionar cuantitativamente la adiposidad con la masa muscular, este índice permite evaluar las afectaciones relativas del metabolismo energético y del metabolismo proteínico y de esta forma sería posible discriminar entre las distintas líneas de desarrollo de la desnutrición proteico-energética, aun cuando ésta se halle en su etapa subclínica.

GUATEMALA

Head and chest circumferences in rural Guatemalan Ladino children, birth to seven years of age. —R. M. Malina, J. P. Habicht, R. Martorell, A. Lechtig, C. Yarbrough and R. E. Klein. (INCAP, Guatemala). The American Journal of Clinical Nutrition, 28: 1061-1070. 1975.

Growth patterns in head and chest circumferences are reported for a mixed-longitudinal sample of rural Guatemalan Ladino children from birth to 7 years of age. The sample is representative of a population with suboptimal nutrition. Both circumferences show similar rapid growth from birth through 9 months, after which chest circumference continues to increase more rapidly, while head circumference increases at a slower rate. Chest circumference provides nutritional information apparently not contained in length and weight. Compared to a sample of well-nourished children from Denver the head circumferences of Guatemalan children are consistently smaller. Differences are relatively small at birth, are well established by 6 months, and become progressively greater through 24 months. After 2 years the mean smaller head circumference of the Guatemalan children also reflects stunted growth during the first 2 years of life. Similarly, among 5-year-old Guatemalan children of similar stature, head circumference at 5

year of age indicates which of these children were more stunted in stature at 2 years of age. 18 Ref.

Upper arm anthropometric indicators of nutritional status.—Reynaldo Martorell, Charles Yarbrough, Aaron Lechtig, Hernán Delgado, and Robert E. Klein. (INCAP, Guatemala). Am. J. Clin. Nutr. 29: 46-53. 1976.

The growth in arm muscle area and arm fat area of preschool children from rural Guatemala is compared to that of a standard from the U.S.A. It was found that although the Guatemalan children have reduced arm muscle and fat areas, the relative reduction in arm fat area was greater than in arm muscle area. Further, the upper arm cross-sectional area of Guatemalan children had proportionately more muscle than fat when compared to that of U.S.A. children. Lastly, for the same body weight, Guatemalan children had a similar arm muscle area but a clearly smaller arm fat area than North American children. It is concluded that these findings suggest that energy rather than protein is the main nutritional problem in these Guatemalan children.

Pulpa y pergamino de café. X. Cambios en la composición química del pergamino de café por efecto de diferentes tratamientos alcalinos. — Beatriz Murillo, Marco Tulio Cabezas y Ricardo Bressani. (INCAP, Guatemala). Turrialba, 25, 179-182. 1975.

Two experiments were carried out to determine the effect of different alkaline treatments on the chemical composition of coffee hulls. In the first experiment 12 treatments were applied to 10 g samples of ground and dehydrated coffee hulls. The treatments consisted of adding 50 ml of a 0, 2.5, 5.0 or 10 per cent solution of NaOH, $Ca(OH)_2$, or NH_4OH at room temperature (20°C) during 24 hours. In the second experiment, to the same weight of coffee hulls, 50 ml solutions of 0, 2.5, 5.0, 7.5 or 10 per cent NaOH at room temperature for 24 hours or at 130°C and 20 psi in the autoclave for 30 minutes were added. All alkaline treatments induced partial hydrolysis of cellular walls, NaOH being the most effective. The higher temperature and pressure in the autoclave did not result in an additional effect on the hydrolysis of cellular walls by NaOH. Analysis of the cellular wall components showed that the partially hydrolized compounds were hemicellulose and cellulose while lignin was not affected by the treatments.

Influence of maternal nutrition on birth weight. — Aaron Lechtig, Charles Yarbrough, Hernán Delgado, Jean-Pierre Habicht, Reynaldo Martorell and Robert E. Klein. (INCAP, Guatemala). Am. J. Clin. Nutr. 28: 1223-1233. 1975.

This paper discusses some conditions necessary to detect an effect of maternal nutrition on birth weight and the relative contribution of calories and protein to such an effect. The expected dose- and time-response relationships for nutritional interventions aimed at the improvement of birth weight are also discussed. There appears to be a minimal level of nutrients which must be available in order to obtain adequate birth weight. However, above this minimum level, pregnant women can adapt themselves to a wide variety of food intake, both in quantity and quality, without affecting birth weight. The relative contribution of calories and protein to an increase in birth weight depends on the limiting nutrients of the home diet in the population under study. Other factors like physical activity, prevalence of disease and magnitude of the maternal nutritional stores before pregnancy are also important determinants of the relative contribution of calories and protein to birth weight. The anticipated input of a nutritional intervention on birth weight should range between 25 and 84 g of birth weight/10.000 kcal ingested during pregnancy. This estimate was computed from analysis based on four sources of published data: weight gain during pregnancy, prepregnant weight, fetomaternal body composition, and food intake during pregnancy. The expected reduction in proportion of low birth weight (LBW $\leqslant$ 2.5 kg) babies following a nutritional intervention will depend not only on the estimated range of fetal weight increase but also on the total amount of suppelemented calories ingested during pregnancy as well as on the existent proportion of low birth weight babies to the intervention. The offspring of women who have low prepregnant

weight, poor diet, low level of replacement of the home diet by the supplement, low physical activity during pregnancy and good health status will show larger increase in birth weight per unit of supplemented calories. Finally, nutritional interventions during pregnancy as opposed to earlier in the life of the mother, should have the higher impact on birth weight. In consequence, interventions as of pregnancy are recommended. 37 Ref.

Nutritional status and the timing of deciduous tooth eruption.—Hernán Delgado, Jean-Pierre Habicht, Charles Yarbrough, Aaron Lechtig, Reynaldo Martorell, Robert M. Malina, and Robert E. Klein. Am. J. Clin. Nutr. 28: 216-224. 1975.

The number of deciduous teeth in a sample of rural Ladino Guatemalan children was counted every 3 months through 24 months of age, and at 6-month intervals from 24 to 36 months. Nutritional status at birth, whether expressed as full-term birth weight or as maternal caloric supplementation during pregnancy, influences the timing of deciduos tooth eruption. Furthermore, the timing of deciduous tooth eruption seems more closely associated with postnatal weight than with birth weight. Although indices of nutritional deficiencies are associated with retarded tooth eruption, the use of mean number of deciduous teeth erupted as an estimate of mean chronological age in population living under conditions of mild-to-moderate malnutrition is relatively accurate because errors of age estimation based on mean values for the present sample only vary between 1 and 2 months. 27 References.

MEXICO

Cristalización de lactosa en suero de leche.—Luis Antonio Ponce-Gómez y Raúl Herrera-Ponce. (Inst. Politécnico Nacional, Apt. 75-839, México 142). Rev. Tecnol. Aliment. (México). 10: 107-111. 1975.

Un estudio de la cristalización de lactosa, en suero fresco de leche, pasteurizado y descremado bajo las siguientes condiciones: pH = 4.5 a 4.7; desproteinado con ácido clorhídrico; evaporado al vacío a una temperatura de 48 a 52°C, hasta un 57.1 por ciento de sólidos totales; temperatura de cristalización 32°C ± 0.4; con agitación y en nucleación espontánea, dio lugar a la siguiente ecuación empírica:

$$Y = A_0 \, e^{-A_1/X} \qquad (I)$$

Donde: X = Tiempo en horas.
Y = Gramos de lactosa cristalizada por litro de suero original.
A_0 = 55. 022.
$-A_1$ = 0. 601.

Además, por el método clásico cinético químico, se determinó que la reacción es de tercer orden y la constante de cristalización de 0.29.

La intervención del estado en el campo de las subsistencias fundamentales y la tecnología de alimentos.—Enrique Díaz Ballesteros. (Comisión Nacional de Fruticultura, México). Rev. Tecnol. Aliment. (México). 9: 288-292. 1974.

Actividades presentes y futuras del codex alimentarius sobre normas alimentarias. Present and future activities of the codex alimentariux work.—Heriberto Barrera-Benítez. (Comisión Nacional de Fruticultura). Rev. Tecnol. Aliment. (Méx.) 9: 279-287. 1974.

Dentro de la estructura de la Organización para la Agricultura y la Alimentación (FAO) y con el copatrocinio de la Organización Mundial de la Salud, la Comisión del Codex Alimentarius ha estado dedicada al desarrollo de las Normas Internacionales de alimentos sobre una base mundial, regional o un grupo de países, las cuales eventualmente publicarán normas en un Código de Alimentos que se conocerá como el Codex Alimentarius. Estas Normas tienen como fin el tratar de armonizar las Legislaciones Nacionales sobre alimentos para asegurar una práctica equitativa en su comercio internacional y protege la salud del consumidor, asegurando que se mantengan las debidas precauciones sobre los productos alimenticios.

Trabajando hacia la armonización de las Legislaciones Nacionales de Alimen-

tos, se ve claramente que dentro de estas legislaciones se han establecido diferentes *reglamentos y requerimientos*, que pueden tener la tendencia a crear dificultades, y algunas veces obstáculos serios sin estar éstos sujetos a una tarifa en el Comercio Internacional de productos alimenticios. Este factor puede ser eliminado fácilmente armonizando las Legislaciones Nacionales sobre alimentos que podrían tener como base las Normas Internacionales aceptadas por la Comisión del Codex Alimentarius. Al establecer Normas Internacionales, deben tomarse las debidas precauciones sobre el hecho de que sean aceptables económicamente y que no sean indebidamente restrictivas desde el punto de vista de productores o fabricantes. Debe darse importancia también al grado en que tales normas pueden ser cumplidas.

Hasta junio de 1974, los miembros integrantes de la Comisión del Codex Alimentarius han estado aumentando constantemente y hasta la fecha 104 países son miembros de la Comisión. Se espera que los países observadores, que han estado colaborando en diversas actividades del trabajo de la Comisión del Codex Alimentarius aumenten en las próximas reuniones de la Comisión. De estos 104 países miembros de la Comisión, 21 son de América Latina, siendo los siguientes: Argentina, Barbados, Bolivia, Brasil, Chile, Colombia, Costa Rica, Cuba, República Dominicana, Ecuador, Guatemala, Guyana, Jamaica, México, Nicaragua, Paraguay, Perú, Trinidad-Tobago, Uruguay y Venezuela.

Enriquecimiento de las tortillas con proteínas de soya por medio de la nixtamalización de mezclas de maíz y frijol de soya.—J. Pérez-Villaseñor, F. R. del Valle y M. Saleme. (Dept. de Bioquímica, Facultad de Química, UNAM). Rev. Tecn. Alim. (Méx.) 9: 9-23. 1974. 26 Ref.

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Sugar as a vehicle for iron fortification.—Miguel Layrisse, Carlos Martínez-Torres, Marta Renzi, Fermín Vélez and Magdalena González. (Instituto Venezolano de Investigaciones Científicas, Apartado 1827, Caracas, Venezuela). Am. J. Clin. Nutr. 29: 8-18. 1976.

Sugar as a vehicle for iron fortification presents several advantages over the other vehicles used in the last three decades. In vitro studies demonstrated that ferrous sulfate added to sugar in proportion of 1 mg to 1 g, respectively, is maintained in the ferrous for a period of at least 1 year and not induce adverse changes in the vehicle. Sugar, by itself, carries practically no inhibitors for the absorption of iron. Iron absorption from fortified sugar mixed with vegetais is the same as that of native vegetal iron. The absorption from fortified sugar is increased more than 50% over that observed from native vegetal when it is administered as a drink during the ingestion of a meal. A further increase in absorption was found when fortified sugar was administered with beverages. The mean absorption ratio of fortified sugar given with orange juice. Coca-Cola, and Pepsi-Cola to a reference dose of iron ascorbate was between 0.45 and 0.66, which is more than 3 times the absorption of this iron fortification mixed with vegetals. The mean absorption ratio from coffee was 0 30, and from coffee with milk, 0 15. These data indicate that the fortification of sugar with iron could be a better procedure for the prevention of *iron deficiency* than the iron fortification of bread and wheat products, from which iron is poorly absorbed. It could be used in developing countries where beverages are highly consumed by the low socioeconomic class. This program could be extended to all sugar consumption or be restricted to soft drinks.