

and septicaemic infections caused by the opportunistic and strictly pathogenic species and genera of enterobacteria (bacillary dysentery, typhoid fever, paratyphoid fever, salmonellosis), (c) infections originated from the pathogenic members of genera *Vibrio* (asiatic and eltor cholera, gastro-enteritis and food poisoning caused by the atypical *V. cholerae* 0-group 1, non 0 group 1 *V. cholerae*, group of vibriolike organisms designated as F or EF6 vibrios) as well as those caused by a large number of semiaquatic bacteria such as *Campylobacter jejuni* (gastro-enteritis, meningitis, septicaemia), *Aeromonas hydrophila* (urinary tract infections, gastro-enteritis), *Plesiomonas shigelloides* (dysentery-like enterocolitis), *Chromobacterium aquatile* (pyaemia, septicaemia), *Moraxella lacunata* (conjunctivitis), *Flavobacterium meningosepticum* (meningitis), *Pseudomonas aeruginosa* (genito-urinary tract infections, enteritis, otitis externa), *Alkaligenes faecalis* (gastro-enteritis, urinary tract infections, septicaemia), (d) infections caused by numerous members of the Picornaviridae family (herp-angina, vesicular stomatitis, acute lymphonodular pharyngitis, conjunctivitis, aseptic meningitis, paralytic disease, infectious hepatitis), Reoviridae (rotavirus gastro-enteritis), and (e) infection caused by the resistant forms of fungi, protozoas and helminths (dermatophytiae, amoebiasis, primary amoebic meningo-encephalitis, giardiasis, anisakiasis). Among these infections, cholera, hepatitis A and food poisoning caused by the enterotoxigenic staphylococci, *Clostridium botulinum* type E and Kanagawa positive strains of *Vibrio parahaemolyticus* should be specially considered because of their epidemic potential, serious clinical picture and other consequences (2-7).

Prophylaxis of the sea-born infections is very complex and it is conditioned by the elimination of the pollution sources and by the control of the disposal of the waste water into the coastal sea. Direct outfall of the sewage without previous purification and disinfection must be strictly prohibited. Careful testing of the sea water as well as the control of the marine aliment, shell-fish in particular together with the precise topographic survey aiming at exclusion of the potential sources of infections are recommended. Microbiological monitoring remain the ancillary method in view of checking results in the sanitary and epidemiologic investigations.

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Conference paper / Extended abstract

**Comparative cytogenetic analysis of karyotype morphology and organization in males of species *Libellula depressa* L. and *L. fulva* Müll. (Insecta: Odonata)**

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This study deals with the comparative cytogenetic analysis of karyotype morphology and organization in males of the species *Libellula depressa* L. and *L. fulva* Müll., which are phylogenetically very distant but morphologically the most specialized species of the genus *Libellula* (1,2). As a continuation of cytogenetic research of the European members of the odonate genus *Libellula*, besides chromosome numbers and their variation, the relative size of chromosomes and their variation, mode of sex determination and chromosome structure (C-bands) are compared.

Slides were prepared from gonads by means of the suspension technique and stained with 3% Giemsa or by the C-banding technique according to Sumner (8). Measurements of chromosome size were performed with an accuracy of ± 0.5 μm<sup>2</sup>.

In both species, diploid 2n = 25 and haploid n = 13 chromosome numbers were found. These complements are of a characteristic libelluline type (3-5,7). In a small number of complements, in both species, precocious segregation occurs and two m-chromosomes were found (Figure 1), each of them two times smaller than those in

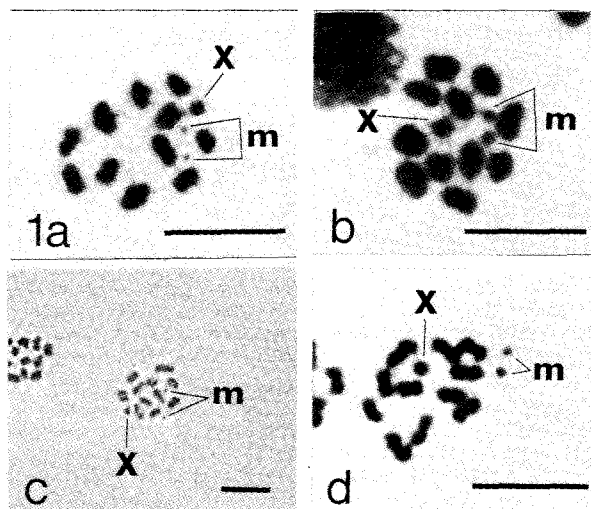


FIGURE 1. Precocious segregation of m-chromosomes. a. *Libellula depressa*, metaphase I. b. *L. fulva*, metaphase I. c. *L. depressa*, metaphase II. d. *L. fulva*, metaphase II. Bar represents 10 μm.

normal complements. The relative size of chromosomes was expressed as a percentage of total chromosome size (TCS) (Figure 2). A significant difference was found only between the relative size of m-chromosomes, in species *L. depressa* being twice as small as m-chromosome in the species *L. fulva*.

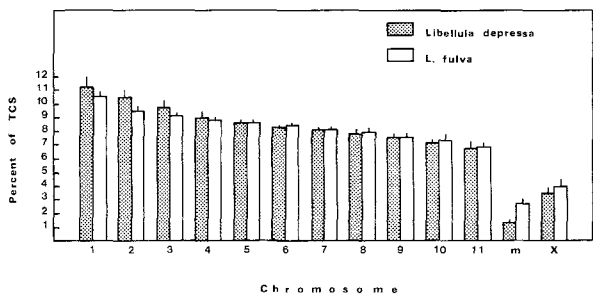


FIGURE 2. Idiograms of haploid complements of species *Libellula depressa* and *L. fulva*. Relative size of chromosomes was expressed as a percentage of total chromosome size (TCS).

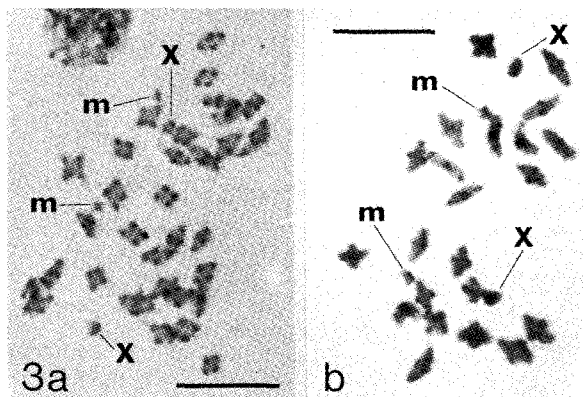


FIGURE 3. C-banding of chromosomes in metaphase I. a. *Libellula depressa*. b. *L. fulva*. Bar represents 10µm.

The XO type of sex determining mechanism was found in both species.

C-banding analysis revealed the presence of two distinct C-bands on each chromosome with a telomeric position in both species (Figure 3). This finding suggests an hypothesis of the dicentric centromere apparatus in Odonata (6).

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**Immunohistochemical study of neuron-specific enolase and S-100 protein in the human gastro-duodeno-pancreatic system during ontogenesis**

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In view of the possible importance of neuron-specific enolase (NSE) and S-100 protein (S 100) as specific neuronal and neuroendocrine cell markers indicative for differentiation processes in the gut (1,4) we have immunohistochemically studied the gastro-duodeno-pancreatic (GPD) system of human fetuses during a gestation period of 18-42 wk. NSE, which is a  $\gamma - \gamma$  form of the glycolytic enzyme enolase, is localized in neurons of CNS, peripheral nerves and in the diffuse endocrine system. S 100 represents a calcium binding protein (s) of still unknown function localized in glial cells of CNS and peripheral nerves as well in certain other cells. Since peptide immunocytochemistry does not allow demonstration of all neuroendocrine cells at one time, the immunodetection of NSE and S 100 permits an integrated study of autonomic nerves, neuroendocrine (APUD) cells (3) and GPD associated lymphoid tissues.

Fifteen human fetuses were obtained from spontaneous abortions (n = 6), premature birth (n = 8) and postmature birth (n = 1). The pylorus, duodenum and pancreas were fixed in phosphate buffered paraformaldehyde (4%, pH 7.4) and embedded in paraffin. Immunohistochemical study was carried out by the peroxidase-antiperoxidase (PAP) method. Rehydrated sections were incubated over night at 4°C with antibody against NSE (Dako, Copenhagen) diluted 1:400 with PBS and with antisera against S 100 (Dako) diluted 1:100 with PBS and incubated 1 hour at 37°C.

After 18 wk development of the GPD system, the immunoreactivity of NSE and S 100 and cellular composition of nerves were shown to be more advanced in the pancreas than in the pylorus and duodenum, respectively. In the pancreas where epithelio-mesenchymal interaction is in progress, the islets are masked and only well formed nerves were strongly S 100 and NSE immunoreactive. In peripancreatic lymphoid tissue individual S 100 immunoreactive lymphoid cells first appeared. The architecture of myenteric plexus in pylorus and especially in duodenum was still primitive, with scarce ganglia cells. In the submucosa there was only a slight immunoreactivity in rare nerves with no reactivity of nerve endings in the lamina propria.

By the 23rd wk of gestation, pronounced development of the entire enteric nerves had taken place. The main features were a clearly myenteric plexus with an increased number of nerve cells and more complex ganglia. The submucosal plexus was already well developed in the pylorus and less in the duodenum. A number of NSE and S 100 reactive endocrine cells with various grades of granular density first occurred in pyloric glands and only individual cells in the duodenum. The volume density ( $V_v$ ) of NSE positive endocrine cells reached an about 4% of the entire epithelial cells (Table 1). In mesenteric lymphoid tissue numerous lymphocytes showed immunoreactivity to S 100 and NSE.

At 26 wk further development of the enteric nervous system appeared in the form of a well elaborated nervous plexuses in the pylorus and duodenum. The intramural nervous system was similar according to its complexity to the older fetuses studied (31-36 wk)