Genetic and embryological studies under the effect of some industrial product pesticides on certain species of mammals

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The present study was designed to investigate some toxicological effect of the bromadialone as anticoagulant rodenticides which used to control the rodents that caused great economic losses to growing, animal's farms and fabric of buildings .Beside the rodent are involved in the transmission and dissemination of many parasites and diseases to man and his domestic animals.Therefore, the present study aimed to investigate the harmful side effect of bromadialone which used on earth and plant so it may be inter the food cycle of human and cause a great harmful effects.The present study investigated two items:-1- mutagenic effect of anti coagulant rodenticide bromadialone, on the bone marrow cells(chromosomes aberrations assays) of the maternally treated newborn and their mothers with different doses of bromadialone (1/10 LD50 of bromadialone ;0.1125 mg/Kg b.w.&1/20 LD50of bromadialone ;0.0562 mg/kg b.w. on day 15 only and on day 8 and15) of pregnancy , classical methods of cytogenetic was carried out to study the chromosomal abnormality. .2- Investigation histopathological effect of the anticoagulant rodenticide bromadialone on (Liver, Kidneys and Lungs) of the maternally treated newborn and their mothers with different doses of bromadialone (1/10 LD50 of bromadialone ;0.1125 mg/Kg b.w.&1/20 LD50of bromadialone ;0.0562 mg/kg b.w. on day 15 only and on day 8 and15) of pregnancy .The used rats in the present work were divided in different groups:Group(1):The control animals were of the same inbred strain of the treated animals.Group (2):pregnant mothers were treated orally with one dose (1/10 LD50) (0.1125 mg/kg b.w.)of bromadialone at the day 15 of pregnancy .Group (3):pregnant mothers were treated orally with two doses (1/10 LD50) (0.1125 mg/kg b.w.)of bromadialone at the day 8 &15 of pregnancy .Group(4):pregnant mothers were treated orally with one dose (1/20 LD50)(0.0562 mg /kgs b.w.)of bromadialone at the day 15 of pregnancy .Group (5):pregnant mothers were treated orally with two doses (1/20 LD50) (0.0562 mg /kgs b.w.)of bromadialone at the day 8 &15 of pregnancy .Mothers and early postnatal newborn directly were collected for the examination of chromosomal aberration and for the histopathological investigation(liver, kidney and lungs).The present investigation includes the following items; structural aberrations , numerical aberrations, mitotic index and histopathological study.6-1 structural aberrations:-In the case of treatment of mother's rat with two different doses of bromadialone at day 8 and day 15 of pregnancy, deletion, centromeric attenuation and gap appear

in high rate.In the case of treatment of mothers rat with one dose of bromadialone in day 15 of pregnancy, deletion, centromeric attenuation appear in high rate.6-2 numerical aberrations:-Numerical aberration appear as (monosomic) in bone marrow of treated mother and their new born.6-3 Mitoyic index:-Rate of mitotic index decrease in the new born and their mother treated with different doses of bromadialone.6-4Histopathological study:The mothers and their newborns at delivery treated with bromadialone showed histopathological alternation in the liver, kidneys and lungs.LIVER :Regarding the histopathological effects of bromadialone rodenticide on the liver of albino rat, Rattus norvegicus (newborns and their mothers after oral administration with different doses of bromadialone (1/10LD50 of bromadialon(0.1125mg/Kg b.w.), 1/20 LD50 of bromadialone(0.0562mg/kg b.w.) on day 15 only and days(8 &15)of pregnancy showed , different shapes of histopathological changes i.e ,necrosis ,lymphatic infiltration, fatty change ,hyDROPic degeneration and venous congestion.Kidney:-The kidney of maternally treated newborn and their mothers of albino rats, Rattus norvegicus after oral administration 1/10 LD50 of bromadialone; 0.1125 mg/kg b.wt&1/20 LD50 of bromadialone; 0.0562 mg/kg b.wt , respectively on day 15 and days 8&15 showed degenerative effects , i.e. necrosis of the epithelial cells lining the convoluted proximal & distal and collecting tubules of the cortex , focal infiltration atrophied glomeruli; cloudy swelling , hyDROPic degeneration and glomerulonephritis of the malpighian corpuscles , haemorrhage in the medullary portion and congestion blood vesselsLung:-The lungs of the maternally treated newborn and their mothers showed some histopathological changes ;pulmonary oedema appears as a homogenous faintly stained oesinophilic fluid in the terminal and respiratory bronchioles and alveolar ducts.As well as there is peribronchiolar lymphoid cell aggregation.ConclusionThe anticoagulant roadenticide bromadialone must be used in a limited scope because it is very dangerous especially during pregnancy and its application in agriculture should be under very tight control.The result indicate that bromadialone had mutogenic effect in chromosome. Also bromadialon had a very dangerous histopathlogical effects in internal organs (liver, kidneys and lungs).