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SUMÁRIO

Embryo development in uterine environment in rats (*Rattus norvegicus* Berkenhout, 1769) treated with lapachol

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ABSTRACT: The conceptus' development occurs in specific microenvironments located in the oviduct and in the uterus. External and internal factors capable of altering these environments can cause lesions which, depending on its gravity, cause malformations or even death of the conceptus. Among the factors that cause embryonic and fetal alterations are some phytotherapic agents. Lapachol is a phytotherapy compound (2-hydroxy-3-(3-methyl-2-butenil)-1,4-naphthoquinone) extracted from the bark of different species of *Tabebuia* (family Bignoneaceae) and shows a large array of pharmacological action (antimicrobial, antiviral, anti-inflammatory, trypanosomicidal, antimalarial, neoplasic inhibitor among others). Previous studies have shown that lapachol does not seem to alter the oviduct microenvironment when administered between 1st and 5th day of gestation, by not affecting the pre-embryo development. However, it was extremely embryotoxic during the organogenic period (8th to 12th day of gestation). The information given has led to the hypothesis that a contact with the maternal blood would be necessary for the expression of its toxic effect. The present work has attempted to evaluate the embryos' viability and development after mothers were treated with

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lapachol during the blastocyst implantation period. Lapachol was administered on a single or successive days. Inseminated Wistar rats from the Centro de Biologia da Reprodução Animal House were randomly divided into four experimental groups, according to the treatment period: **I** – 5th day of gestation; **II** – 6th day of gestation; **III** – 7th day of gestation and **IV** – treated from 5th to 7th day of gestation. Each experiment had the following groups: Control (1 ml of distilled water), Vehicle (1 ml of 50% hydroalcoholic solution/distilled water), lapachol-100 (100 mg of lapachol/kg of body weight, diluted in 1 ml of hydroalcoholic solution) and lapachol-200 (200 mg of lapachol/kg of body weight, diluted in 1 ml of hydroalcoholic solution). The administration of lapachol was done via gavage, always at 4 PM and the animals were sacrificed on 15th day of gestation by an overdose of ether inhalation. The following maternal variables were analyzed: presence of piloerection, motility alteration, diarrhea and deaths, body weight (1st day of gestation, beginning and end of treatment and sacrifice day) and food intake from 2nd to 15th day of gestation. The ovaries were individually weighed and their corpora lutea were counted. Implants, viable fetuses, resorptions and dead fetuses were also counted. Live fetuses were examined under a stereomicroscope for the identification of external malformations. They were later weighed as well as their placentas. Data were analyzed using the ANOVA-one way test, the Chi test and the Student t test at the significant level a<0,05. The results show that the administration of 100 or 200 mg of lapachol/ kg of body weight was not toxic to the mother. The number of resorptions was high in all animals treated with 200 mg, except for the 6th day of gestation. The administration of 100 mg of lapachol caused the increase of resorptions on the 7th day of gestation and when administered successively from 5th to 7th day. Fetuses and placentas obtained from mothers treated with 200 mg of lapachol were smaller than the control ones, however with the 100 mg-lapachol-treatment, smaller fetuses and placentas were found only on 7th day of gestation and with successive administration of lapachol. The data show that lapachol causes embryonic deaths and intra-uterine growth retardation, being particularly effective when contact of the embryo with the maternal blood occurs.

Qualitative and quantitative evaluation of dust mites in rural dwellings of the region called "Zona da Mata", State of Minas Gerais, Brazil

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ABSTRACT: House dust mites are important arthropods for their role in allergic diseases etiology. Knowledge of their biology and the behavior of their populations in the different ecological niches that they occupy is essential to establish adequate proceedings to control them. In the period from June to September 2000 (winter) and from January to March 2001 (summer), dust samples were collected from mattresses in 30 rural dwellings situated in farms in the geographic region called "Zona da Mata Mineira". After being separated, the mites were identified and quantified. From a total of 3879 mites, 891 were found in the winter (22,97%) and 2988 in the summer (77,03%). From this total, 2889 mites (74,48%) were adults and were identified. In the winter, *Dermatophagoides pteronyssinus* (Trouessart, 1897) was the most prevalent (55,00%) followed by *Blomia tropicalis* Bronswijk, Cock & Oshima, 1973 (27,06%), *Euroglyphus maynei* (Cooreman, 1950) (8,85%) and the Cheyletidae predatory mites (8,07%). In the summer, *B. tropicalis* was the most prevalent (47,79%), followed by *D. pteronyssinus* (43,38%), Cheyletidae (6,87%) and *E. maynei* (1,28%). Few *Dermatophagoides farinae* Hughes, 1961, *Chortoglyphus arcuatus* (Troupeau, 1879) and mites of the Tarsonemidae and Cunaxidae were found, the last two only in the summer. The

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Acaridae mites were not found. The higher number of immature stages found in the summer suggested a major reproductive activity during this season.

Influence of diet at behaviour and dynamic population of rumen protozoa ciliates in bovine

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ABSTRACT: The rumen protozoa ciliates are influenced by many factors, from which the kind of diet is the most prominent. Depending on the kind of diet that the host receives, the ruminal community can be modified and the ciliates can change their behaviour. Elephant grass (*Pennisetum purpureum* Schum.) is a tropical forage used in many tropical areas as an alternative food during periods of the year. The objectives of this study were to carry out the survey and to quantify the rumen ciliates of crossbred cows Holstein x Zebu fed Elephant grass with or without concentrate. It was checked the forage's phenology and sampling time, correlating them with the percentage of each genus found and with the kind of ciliate community, inferring about the association and antagonism behaviors between them. The animals were kept in EMBRAPA – Dairy Cattle facilities, in Coronel Pacheco, MG, receiving food in individual troughs. It was found ciliates belonging to the families Blepharocorythidae (*Charonina* Strand, 1928), Isotrichidae (*Isotricha* Stein, 1859 e *Dasytricha* Schuberg, 1888) and Ophryoscolecidae (Entodiniinae: *Entodinium* Stein, 1859; Diplodiniinae: *Diplodinium* Schuberg, 1888, *Eudiplodinium* Dogiel, 1927, *Ostracodinium* Dogiel, 1927, *Metadinium* Awerinzew & Mutafowa, 1914, *Eremoplastron* Kofoid & MacLennan, 1932, *Eodinium* Kofoid & MacLennan, 1932, *Diploplastron* Kofoid & MacLennan, 1932, *Polyplastron* Dogiel,

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1927; Ophryoscolecinae: *Epidinium* Crawley, 1923). The host influenced the occurrence of each genus. The number of ciliates found was bigger from animals fed diets with concentrate than in the ones treated only with Elephant grass. It was observed that the amount of rumen ciliates was influenced by the kind of diet and by the moment the sample was obtained. Under these conditions, the Elephant grass' phenology, individual features of hosts and the moment the samples were obtained influenced ciliate communities. The kind of diet did not interfere in the community profile.

Biological parameters of oviposition of *Amblyomma cajennense* (Fabricius, 1787) (Acari, Ixodidae) proceeding from natural infestations of bovines

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ABSTRACT: *Amblyomma cajennense* (Fabricius, 1787) is a species of ixod that has been deserving the researcher's attention, due to the vast geographic distribution through the Americas and the economical lost caused by parasitism. This tick transmits the Rocky Mountain spotted fever, having importance to veterinary medicine and public health. When adults, they prefer to parasitize equines. Reports about their biology related to other species of hosts are uncommon. Because of the reduced number of studies, the objective of this work was to evaluate the oviposition of *A. cajennense* proceeding from natural infestations of bovines. This study used 50 females manually collected in crossbred cows (Holstein x Friesian-zebu) during lactation. The animals were naturally infested and proceeded from EMBRAPA – Gado de Leite - experimental farm, situated in Coronel Pacheco, Zona da Mata de Minas Gerais, in April of 2001. The ticks were treated with acaricide 11 days before their collection. After being collected, the females were carried to the Biology and Ecology Ticks Lab, of the Master Course in Biology – Animal Ecology and Behaviour, Juiz de Fora Federal University. In the lab, they were cleaned with a brush with soft bristles, weighed and each one was maintained on a Petri's plate into the

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climatical stove controlled at the temperature of 27 ± 1ºC and relative humidity over 80%. After the oviposition beginning, the eggs were daily collected, weighed and transferred to plastic disposable syringes, which were also maintained inside the stove. Each female had the date of the beginning and the end of oviposition noted down. All observations were daily done through morning. At the end of the oviposition, all females were weighed again to verify the lost of weight during the oviposition. The females' average weight was 541,4 ± 89,37 mg; 49 of the 50 females studied did oviposition, which had, on average, a preoviposition period of 5,9 ± 1,33 and an oviposition period of 19,9 ± 6,28 days. The index of reproductive efficiency was 54,1 ± 11,92 % and the index of nutritional efficiency was 71,0 ± 12,48%. The incubation and the emergence periods had, on average, 35,3 ± 2,14 and 6,0 ± 3,07 days respectively. The average percentage of emergence was about 49,6 ± 34,14%. The larvae survived around 43,5 ± 7,36% days. These results are similar to the ones that are found in literature about females which parasitizes equines, except for the average percentage of emergence and larvae longevity, showing that bovines can be hosts of *A. cajennense* adults.

Behavior of *Plasmodium (Novyella) juxtanucleare* Versiani & Gomes, 1941 (Apicomplexa, Plasmodiidae) in *Gallus gallus* L., 1758, in natural conditions

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ABSTRACT: The *Plasmodium (Novyella) juxtanucleare* Versiani & Gomes, 1941 is the only species that induce the avian malaria in *Gallus gallus* Linnaeus, 1758 in Brazil. Described in fowls of the state of Minas Gerais, it causes chronic disease, in agreement with several authors can cart morbidy and mortality of its vertebrate hosts. This work was done at farm Boa Vista (21º15'12"S, 43º27'16"W), county of Santa Bárbara do Tugúrio, Minas Gerais and the objectives were to check the prevalence of 100% found in previous studies, in the same place; to accompany the variation of the *P. juxtanucleare* through of the year; to compare the prevalence and parasitaemia between males and females and between youth and adults; to relate the variation of the corporal temperature of those fowls with of the parasitaemia. We have examined bloods smears, which were dyed with Giemsa and observed in microscopy immersion, of 25 half-breed fowls in a year of record of data, monthly (from november/00 to may/01) and biweekly (from juny/01 to october/01). The erythrocytic forms were registered and quantified by the observation of 100 microscopic fields. Prevalence of 100% was verified; statistically there

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wasn't correlation between the increase of erythrocytic forms and parasitaemia with the sex, with the age and with the corporal temperature of the fowls hosts. The parasites by field obtained were 51,7% to the bloods smears from one to five parasites; 29,2% from six to ten and 19,1% above ten.

Behavior of *Polistes* (*Aphanilopterus*) *ferreri* Saussure, 1853 (Hymenoptera, Vespidae), during the different stages of development of the biological cycle of the colony

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ABSTRACT: The social paper wasp *Polistes ferreri* Saussure, 1853 preferably constructed its nests on human buildings (66,66%). The pleometrotic fundations was the most common type (66,66%). There was one case of abandoned nest which was reused for a colony foundation. All well succeeded colonies in reaching the post-emergency stage were initiated by a foundress association of two to five females. The species showed a tendency to found its colonies from August to December and although the colonial activities can be found throughout all the months of the year, they were more frequent from September to April. The largest fleeing incidence occurred from September to December and in June and July. The occurrence of winter attachments was recorded during May to July. *P. ferreri* females showed 38 different behavioral patterns. There were variations in number and frequency in different stages about the behavioral repertory showed by dominants and

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subordinates. The dominant and subordinate females remained resting in the nest for the greatest part of the time. Behaviors of great immobility, more eggs being laid, and more cells wipigin gaster were observed only among the dominants. The subordinate ones were responsible for foranging activity and nectar was the most forage substance during all the cycle. There were a few aggressive interactions among dominants and subordinates, but they were frequent among subordinates within the first weeks of their lives (week 1-8). The life span of the dominant female was 81,57 days, co-foundresses females was 51,43 days, subordinates was 37,3 days. The average of males had stayed in the nest was 8,06 days. The subordinate females showed a great behavioral plasticity throughout their lives. Male production happened from March to July, however it was bigger in April. The *P. ferreri* males showed 17 different behavioral patterns. Although males remained resting in the nest for the greatest part of the time, they can contribute with some task in the nest as fanning the nest, chewing prey and feeding larvae.

Histological characterization of ovotestis of *Bradybaena similaris* (Férussac, 1821) (Mollusca, Xanthonychidae) in different development phases, kept isolated or in groups, under laboratory conditions

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ABSTRACT: Ovotestis of samples of *Bradybaena similaris* (Férussac, 1821) (Mollusca, Xanthonychidae) have been studied, under a microscopical aspect, kept isolated and put together every 10 days, for 180 days. Since their birth, in the same temperature and light conditions, eighty animals had been kept isolated one by one, and other eighty had been kept together in groups of 20 mollusks. Two animals of each group were sacrificed 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170 and 180 days after the isolation. In a whole, 72 specimens have been examined. It has been confirmed that the ovotestis of *B. similaris* lays in the middle of a loose conjunctive tissue, inwardly to the digestive gland, and is constituted of tubular units, bounded fusiform cells, over which cells of the germinative lineage in different maturing stages lay. The oocytes, big cells whose cytoplasm is tinily granular and whose nucleus is spherical with an evident nucleolus, are located on the basis of the acinous wall, beneath the male cells which are always lumen ones. A cavity separates the oocyte from the follicular epithelium, sometimes in a more

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overt way, sometimes in a less one. The spermatozoa, attached to the Sertoli cells or free in the tubule lumen, arrange themselves in a parallel way and stand out because of the pronounced basophile of their heads and their long and eosinophilic tails. Through the hematoxylin-eosine, as for the animals kept isolated as for those kept in groups, the ovotestis was first identificated at the age of 30 days. Also in both groups spermatozoa and oocytes were primarily observed at the age of 70 days. Although sexual maturity had been reached at the same age in both groups, the interval between the production of gametes and the oviposition was bigger among the isolated animals in comparison with the ones kept in groups (73 and 24 days, respectively). Among 80 isolated animals, four had layed eggs, with a rate of self fecundation of 5%. In the terrarium of one of these individuals, a newborn has been observed. Only one egging was observed in the other three animals, with a total number of 12 eggs, from which 10 belonged to the same individual. No offspring resulted from these eggs.

Behaviorist of crossbred cows (Holstein-Zebu) kept with natural shadow disposal in silvipastoral systems

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ABSTRACT: This research was accomplished at "Campo Experimental de Coronel Pacheco" of "Embrapa Gado de Leite", located in the town of Coronel Pacheco in the state of Minas Gerais, Brazil. The main goal was to study some behaviorist and physiological mechanism of crossbred cows (Holstein-Zebu) kept in *Brachiaria decumbens* grazing with natural shadow disposal in silvipastoral systems. The observations were done during the winter (three days in June and three days in July, 2000) and summer (3 days in January and 3 days in March, 2001). There were eight "dry" cows, Holstein-Zebu, in each phase, to observe the behavior of the animals in grazing, beginning at 6 a.m. up to 6 p.m. The measurements of the behaviorist patterns were accomplished through instant collection in every ten minutes. During these observations it was identified, to each animal, one of the following behavior: position, if it was standing or lying, and the activities of feeding and rumination or if it was not doing anything. It was also identified the place in which each activity took place, if it was under the sun or shaded area and in this case under what kind of tree existing in the experimental area it happened. The results showed a great need of production systems that furnish shadows to the crossbred animals with predominance of the Holstein breed blood so that they can live in thermic comfort and keep a high production and reproduction rate.

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