Terlihat dalam tabel tersebut bahwa pembagian al-
 bendazo dosis 20 mg/kg BB menyebabkan resorpsi pada seluruh fetus (100%) bila dibandingkan dengan efek yang diberikan oleh al bendazo dosis 10, 5 dan 0
 mg/kg BB.

Pada dosis 10 mg/kg BB menyebabkan 42,30% dari seluruh jumlah fetus cacat, sedangkan pada dosis 5 dan 0 mg/kg BB (tidak menunjukkan efek resorpsi) maupun efek cacat pada fetus. Dari hasil tersebut menunjukkan bahwa efek al bendazol menjadi makin berat bila dosis disinkinkan, ini berarti ada hubungan antara dosis dan efek. Al bendazo dosis di atas 10 mg/kg BB menyebab-
 kan fetus cacat dan dosis di atas 20 mg/kg BB terjadi re-
sorpsi fetus.

Seperti diketahui, terjadinya resorpsi fetus merupakan
akan salah satu indikasi naf su abortif, dan bahkan yang berasal abortif potensial berisiko teratogen (Frazer cil.
Narendah et al., 1987). Dengan demikian dapat
 dikatakan bahwa al bendazo menyebabkan efek teratoge-
nik dan efek tersebut baru timbul pada dosis 10
 mg/kg BB. Yang mencegah di sini adalah dosis teratogen
 dari hasil penelitian (10 mg/kg BB) hanyu seperti dari
dosis yang dikemukakan oleh Roberts (20 mg/kg BB).

**KESIMPULAN**

Dari hasil penelitian yang diperoleh maka dapat
ditarik kesimpulan bahwa al bendazo menyebabkan
efek teratogenik pada fetus (khusus) dan efek tersebut baru timbul pada dosis 10 mg/kg BB.

**DAFTAR PUSTAKA**

Delatour, P. 1983. Chemical induced teratogenesis, da-
lam buku Veterinary Pharmacology and Toxicology

Narendah, P.S., Bambang, W., dan Retno, G. 1987. Pengaruh buah merica (Piper nigrum L.) dan buah cabe jawa (Piper ructracum) terhadap ke-
handalan micit. Majalah Farmakologi Indonesia &

Veterinary Pharmacology and Therapeutics. 5 th ed. The Iowa State University Press. p. 869.

Tod, K.S. and Mansfield, M.E. 1982 Evaluation of
Al bendazo in Cattle naturally infected with ne-

**ST**

**A Review of literature on:**

**DERMATOPHYTES IN HUMAN AND ANIMALS**

R. Wasitoto 1,
Beneke E.S. and Hastari Wuyastuti 2

**RINGKASAN**

Di Australia, telah diisolasi Microsporora canis dari kucing, anjing, kelinci, kuda, singa, domba dan manu-
sia; M. gyipseum dari hewan liar, tikus, kelinci, kelela-
war, reptilia, anjing, babi, unta dan kuda; M. nanum
dari babi dan manusia; Epidermophyton floccosum dari
manusia; Trichophyton mentagrophytes dari marino,
kanguru, menci, tikus, anjing, kuda, kelinci dan mau-
lusia; T. equinum dari kuda; T. rubrum dari manusia;
T. verrucosum dari sapi, menci dan manusia.

Di Indonesia, di daerah sekitar Medan, Bandung
dan Jakarta, telah diisolasi M. gyipseum, E. flocosum,
T. concentricum, T. rubrum, Candida albicans dan C.
parapsilosis dari manusia; M. gyipseum, T. terrestre dan
C. keratinophilum dari tanah.

Dari tinjauan pustaka ini, jelas bahwa informasi ten-
tang dermatofitosis di Indonesia tidak atau karan long-
kap. Penelitian-penelitian lebih lanjut mengenai derma-
tofitosis di Indonesia perlu dilakukan mengingat kebenaran dermatofitosis merupakan salah satu penyakit jamur yang dapat ditularkan dari hewan ke
manusia atau sebaliknya (comomos).

**INTRODUCTION**

Relatively numerous data exist in the literature on the
fungal diseases in many areas in the world, particularly
in Australia. However, references to Indonesia are few,
with one report of Trichophyton violaceum, T. concentri-
cum and Microsporum gyipseum in humans (Wassell,
1976), and a reference to M. gyipseum in soil (Susilo
and Eng, 1967).

Records of human and animal dermatomycoses in
Australia has been reported since 1891 (Dunne and
Mary, 1965). A survey of zoophilic dermatophytes
isolated in the Peril area during 1970-1979 is presented.
Microsporum canis was isolated from 353 cats and 43
dogs (McAlear, 1980c). Besides from the dogs and cats
(Keep, 1959; Robert and Keep, 1965; McAlear, 1980 c),
M. canis has also been isolated from the rabbits
(Conolly, 1963a), horses (Pascoe, 1976), lions (Hyne
et al., 1969), Merino sheep (Robert and Keep, 1965),
and humans (Hodgins and Rao, 1965). A small group of
young lions showed small, circular, localized areas of
alopecia which was also reported to be M. canis (Hyne
et al., 1969). In the sheep, the lesions were about 2cm
diam., with thickened skin covered with entwined wool. Histological sections showed acute inflammation of the skin, cellular infiltration of the dermis, and severe exudation through the epidermis. Some wool fibers were infected with hyphae, and in an advanced stage disintegrated into fibrils which retained the Gram stain. It is believed that the M. canis infection originated in the cats that went into the pens (Robert and Keep, 1965). In a survey of M. canis infection of cats in Sidney a total of 1,093 cats examined 5.9% were infected with M. canis. A considerable higher incidence was found among thoroughbred cats than among common cats. The highest incidence (12.6%) was found in kittens under 3 months old, and the peak month was April. In 59% of the cases transmission had occurred in humans, twice as many children as adults being affected (Keep, 1960). It was also reported that nine cases of M. canis developed in 2 families associated with a 7-week old kitten (Higden and Rau, 1965). A few cases of M. canis were reported in small areas of South Australia are due to infection from animals, this is probably more frequent in the country (Donzki et al., 1966). Kamiński and Green (1977) reported that the variant of M. canis was isolated from 210 brain samples of 83 children. There were diffuse or scattered fine white scaling lesions with minimal hair loss. This variant developed a small apodylic colony with a central downy to powdery tuft, which in 4-6 days produced many typical macroconidia. Young cultures produced little or no pigment, but later developed a buff or pale brownish pigment. Four cats and 2 dogs at Mansfield were the reservoirs of this variant (Kamiński and Green, 1977).

M. cookei, recorded for the first time in Australia was isolated 6 times from 137 soil samples collected from Queensland (Ridley and Mary, 1961), M. cookei has been observed in wild animals (Ridley and Mary, 1961), rats (Connole, 1963) and dogs (McAleer, 1980b). M. cookei was isolated from soils in yards where wild animals were kept (Ridley and Mary, 1961; McAleer, 1980) and also from human skin and the coats of several animal species (McAleer, 1980).

M. gyipseum has been observed in wild animals (Ridley and Mary, 1961), rats (Connole, 1963), rodents, rabbits, maraschinos, bats, reptiles, and amphibia. In more severe cases (Rees, 1967, dogs (Wilkinson, 1979), pigs and camels (Donald et al., 1966), and horses (Connole, 1967; Pascoe and Connole, 1974). M. gyipseum is rare in South Australia but more common in New South Wales and Queensland (Dowdall et al., 1966). Three dachshunds with multiple skin lesions over the whole of the body surface caused by M. gyipseum have been reported. The lesions were raised plaques 1-3 cm diam., there was no hair loss or pruritus, and the lesions did not fluoresce (Keep and Pile, 1965). In the horses Pascoe and Connole (1974) reported two outbreaks of M. gyipseum infection (involving 8 yearlings in one stall and 10 pregnant mares in another. They found several isolated reports of M. gyipseum from soil samples, a stud and from a clinically normal stallion in an adjacent yard. Moist atmospheric conditions and the presence of biting insects appeared to be factors in the spread and degree of infections in the 2 major outbreaks. Lesions were generally much smaller than those associated with T. equinum var. autotrophicum and showed less scab formation and degeneration. Treatment with thiabendazole and lime sulphur did not appear to reduce the clinical recovery time. Experimental M. gyipseum infection of 3-6 year-old thoroughbred race horses was attempted. All 265 infected sites showed some swelling and roughness at days 2-3 and 175 sites showed roughness with raised skin by days 6-10. This was followed by development of lesions which remained very small. New hair growth usually occurred at day 30.

The disease is usually suspect in pigs in Queensland but 1 case of Notoziza gyipsea infection has been seen (Connole, 1977). Outbreaks of M. nannum infections in pigs and humans in the north were also recorded (McAleer, 1980c). The disease was the same as that reported in USA and occurred on large pig in a widespread area in the north. In pathogenetic studies the 2 isolated tested produced lesions up to 12 cm in diameter. On experimental pigs these lesions progressed within a week (Connole, 1966). M. nannum was also isolated from a rash on the ears of a farmhand who worked in contact with pigs, cattle and poultry. From a rash on the leg of a woman; and from a lesion of a 10-year-old boy who regularly stabled a farm pig, cows and poultry (O'Keeffe, 1973).

All cases of trichophytosis encountered have been due to T. mentagrophytes, which is a common pathogen of animals in Australia (Donald et al., 1966). At the Queensland Inst. Med. Res., Brisbane, from hoofs of 90 wild animals isolations were made of T. mentagrophytes. T. mentagrophytes was also isolated from guinea pigs (McAleer, 1980c), Macaque (McAleer, 1980c), mice (McAleer, 1980c), and rats (Connole, 1963a), dogs (Connole, 1968), horses (McAleer, 1980c), rabbits (McAleer, 1980a) and humans (McAleer, 1980c). T. mentagrophytes is rare in South Australia in 1963, studies at the Adelaide Children’s Hospital and the Institute Medical and Veterinary Science indicated the presence of T. mentagrophytes var. quinckeum (T. quinckeum), and variant of T. mentagrophytes producing a reddish purple pigment and possibly described in 1917. A widespread epidemic was reported due to a granular var. of T. mentagrophytes occurred in a new stock of laboratory guinea pigs. The infections spread quickly among them and also to rabbits and mice at the breeding station and to 4 people. Trunk or limbs were the areas most affected and young aboriginal males were affected more often than others. Areas subject to pressure from clothing were more liable to infection (Green and Kamiński, 1973). The infection was contracted either directly by handling animals or indirectly by fomites. The 4 humans were treated successfully with Castellani’s paint (McAleer, 1980a). Ringworm due to T. mentagrophytes in a dog showed a lesion 4x3 cm is the left front paw, loss of hair and a little scaling but no irritation (Connole, 1964). Wilkinson (1979) reported that a 2-year-old male silky terrier had a multiple infection with M. gyipseum, T. mentagrophytes and C. albicans. As immunodepression was suspected, a course of levamisole and griseofulvin was prescribed. Bone marrow depression was countered with anabolic steroids and a vitamin-E compound. A
10% w/v sol. of ecziasol was applied topically to the lesions. Complete resolution of the infection was obtained after 5 months therapy (Williston, 1979). On the other hand, Conville (1936b) reported that none of the persons handling the animals infected with T. mentagrophytes was infected, nor was the source of infection determined.

Green and Kamiński (1973) reported that dermatophytes on the human skin aboriginale were T. rubrum, M. canis (in a double infection with T. rubrum), Trichophyton floccosum and T. mentagrophytes var. griseofulvum (T. mentagrophytes).

It is noted that Queensland, dermatomycoysis of horses is usually caused by T. equinum var. austrofusum or M. gypseum. Typing of strains of M. gypseum from horses revealed that 24 were N. gypseum, 1 was N. incurvata and 2 were N. fulva. T. equinum var. austrofusum was found to survive for up to 10 months on leather girths which had been used on an infected animal (Conville, 1977). T. equinum var. austrofusum was restricted to racing horses (Pascoe, 1978).

McKone (1980b) reported that T. verrucorum was isolated from 4 cow and 1 bull; all were single infections in dairy herds, and one was also obtained from a laboratory mouse. Human infections with T. verrucorum was recorded during the period.

The incidence of T. terrestre in skin scraping was studied over 7 years. Results showed that in the cow and bull, T. verrucorum was associated with an increased incidence of T. terrestris (Conville, 1977).

Ken (1967) reported that keratinophilic fungi were isolated from 147 (52.7%) of the 279 animals (rodents, rabbits, marsupials, bats, reptiles and a monotreme) examined, and included Arthroderma carrui (61 isolates), A. centuriae (30), A. tuberculatum (8), N. incurvata (52), M. gypseum (6), Creosporium spp. (31), Gyromitra aceris var. (8), Chromocyrtos serratu (5), T. atophili (1), and miscellaneous fungi (6). All 36 bats, 5 After muscaria, and the 1 monotreme examined were negative. The species isolated from reptiles were A. centuriae, N. centuriae and Chrysosporium sp.

An unpublished report of dermatophytes isolated from 17 human cases in the Dermatology Clinic, Medical School Department, University of North Sumatra, Medan, Indonesia by Hutapea and Beneke (1969a), the following were isolated: T. rubrum (7), E. floccosum (4), T. concentricum (2), C. albicans (5) and C. parasitoides (3). The types of infections seen in the males and females patients were essentially alike with the exception that dermatophytes found from soil around the vicinity of Medan, Indonesia were M. gypseum, T. terrestre and Chrysosporium keratinophilum. The perfect stage, N. incurvata, was found growing on hair in two soil samples. It is concluded that in Indonesia, T. terrestre, N. incurvata and C. keratinophilum are apparently reported for the first time (Hutapea and Beneke, 1969a).

REFERENCES

Conville (1963b) Q. J. Agric. Sci. 20: 293.
Donald, G.F. and Geraldine, B (1964) Aust. J. Derm. 7: 133.
Dermatology Clinic, Department of Medical School, University of North Sumatra, Medan, Indonesia.
Dermatology Clinic, Department of Medical School, University of North Sumatra, Medan, Indonesia.

(MDB)