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# Prevalence of Trypanosomosis in Donkeys of some parts of Marathwada region

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**ABSTRACT:** - In this study overall 1447 donkeys were screened for Trypanosoma evansi infection of Nanded district and some part of Ambejogai taluka of Beed district, Maharashtra. The prevalence of Trypanosomosis in donkeys was studied by employing the wet blood mount and Erythrocyte sedimentation rate junction mount method as reference test to detect the cases of trypanosomosis in donkeys. Among 1447 donkeys, 64 had exhibited unthriftiness, inappetance, pallor conjunctival mucus membrane, anaemia, lacrimation, and oedema at dependant parts, corneal opacity and blindness indicating overall occurrence as 4.42 % (64/1447). Most of the donkeys from Ambejogai areas were females. As regards to the age group, among 139 donkeys belonging to the 0 to 03 years age group, 07 donkeys were positive for Trypanosomosis indicating per cent occurrence as 5.03, in the groups of 03 to 06 years, 38 donkeys were positive out of 592 revealing 6.41 % occurrence rate. Among 347 donkeys belonging to 6 to 9 years, 11 were positive indicating occurrence rate of 3.17%. Four donkeys were positive amongst 282 screened of age 9 to 12 years revealing 1.41 % occurrence and 12 and above years, 87 donkeys were screened 04 were found positive for Trypanosomosis revealing 4.59 % occurrence.

**Key Words:**Trypanosomiasis, Prevalence, Donkeys, Wet blood mount.

## I. INTRODUCTION

Equine trypanosomosis is a complex of infectious diseases called dourine, nagana and surra. It is caused by several species of the genus Trypanosoma that are transmitted cyclically by tsetse flies, mechanically by other haematophagous flies, or sexually. Trypanosoma congolense (subgenus Nannomonas) and T. vivax (subgenus Dutonella) are genetically and morphologically distinct from T. brucei, T. equiperdum and T. evansi (subgenus Trypanozoon). It remains controversial whether the three latter taxa should be considered distinct species. The donkey population has remained unchanged in the last two decades despite a decrease in the overall population of equids, emphasizing the usefulness of the donkey as a draught and pack animal (Kumar et al., 2009). Blood borne parasitic diseases of sub-tropical and tropical countries are caused by several species of trypanosomes. Horses, mules and donkeys are susceptible, donkeys are considered to be the reservoir host. In equines, Trypanosoma equiperdum causes dourine and T. evansi causes Surra. The typical clinical expression of surra can be described in camels and horses while donkeys, asses, and mules are of lower susceptibility (Desquesneset al., 2013).The overall purpose of this study was to identify the hot spots in Nanded district and Ambejogai taluka of Maharashtra for the presence of Trypanosoma infection in donkeys.

## II. MATERIALSANDMETHODS

The present investigation titled “Prevalence of Trypanosomosis in Donkeys” was carried out on donkeys of densely populated Talukas of Nanded District and villages of Ambejogai taluka. The donkey population with Trypanosomosis was screened irrespective of age, sex, environment, managemental practices, body score, and presence of vector. The study included clinical cases of Trypanosomosis which are reported in Nanded district and Ambejogai taluka.

The prevalence of Trypanosomosis in donkeys was studied by employing the wet blood mount and Erythrocyte sedimentation rate junction mount method as reference test to detect the cases of trypanosomosis in donkeys. The Wet blood mount tests were also employed as “on–site” test. However, the Erythrocyte sedimentation rate buffy coat mount was conducted in laboratory.

**Wet mount preparation:**

The blood drop was collected on clean glass slide from the ear tip of donkey and glass cover slip was kept over a drop of blood and immediately the slide was observed under low

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power followed by high power of microscope for presence of live, moving or swirling trypanosomes.

**ESRjunction mount (Westergren tube method)**

Freshly drawn blood was filled in a Westergren tube and processed in the same way as for the estimation of ESR. After one hour, the Westergren tube was removed from the stand and packed cell portion was decanted carefully leaving plasma in the sedimentation tube. A drop of blood from RBC- plasma interface was then put over a clean, grease free glass slide, covered with glass slide and examined under microscope for presence of trypanosomes. 2-3 samples were scanned for each sample.

## III. RESULTS AND DISCUSSION

The prevalence of Trypanosomosis in donkeys was studied by employing the wet blood mount and Erythrocyte sedimentation rate junction mount method as reference test to detect the cases of trypanosomosis in donkeys. The Wet blood mount tests were also employed as "on–site" test. However, the Erythrocyte sedimentation rate buffy coat mount was conducted in laboratory. Among 1447 donkeys, 64 had exhibited unthriftiness, inappetance, pallor conjuctival mucus membrane, anaemia, lacrimation, and oedema at dependant parts, corneal opacity and blindness indicating overall occurrence as 4.42 % (64/1447). Most of the donkeys from Ambejogai areas were females.

As regards to the age group, among 139 donkeys belonging to the 0 to 03 years age group, 07 donkeys were positive for trypanosomosis indicating per cent occurrence as 5.03, in the groups of 03 to 06 years, 38 donkeys were positive out of 592 revealing 6.41 % occurrence rate. Among 347 donkeys belonging to 6 to 9 years, 11 were positive indicating occurrence rate of 3.17%. Four donkeys were positive amongst 282screened of age 9 to 12 years revealing 1.41 **%** occurrence and 12 and above years, 87 donkeys were screened 04 were found positive for trypanosomosis revealing 4.59 % occurrence **(Table 1, Fig. 1)**. However, very little information that available in the literature regarding its occurrence in donkey (Suryanarayanaet al., 1985, Ravindran, et al., 2008). In the present study various villages in Nanded district and Ambejogai taluka were visited and sick donkeys were examined. About 1147 donkeys were screened, out of which 64 were found positive (4.42 %) From the study it is observe that in these villages cattle, buffaloes, horses, dogs and donkeys are reared in same locality and act as source of infection to each other in agreement with the same statement the same was depicted by Chowdhury et al., (2008).

A maximum number of trypanosomosis cases were seen when humidity and rainfall were high and can be correlated with favourable atmosphere for breeding of flies like Tabanus and Stomoxys spp. (Gill, 1977).

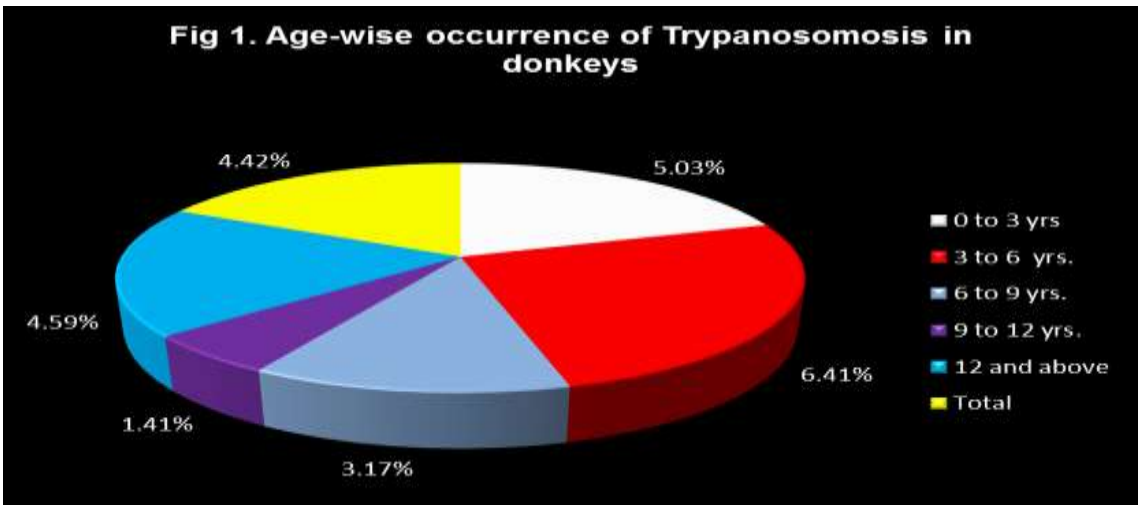

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**Table 1: Distribution of positive cases of Trypanosomosis in donkeys**

| Sr. No. | Positive case No. | Screening No. | Place | Taluka | Age (Yrs.) | Weight (Kgs.) | Sex | WBM | ESR jn. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5 | 98 | Degloor | Degloor | 10 | 70 | M | +ve | +ve |
| 2 | 8 | 193 | Mauli | Degloor | 9 | 65 | M | +ve | +ve |
| 3 | 9 | 223 | Bijjur | Sagroli | 8 | 80 | M | -ve | +ve |
| 4 | 12 | 368 | Ajani | Sagroli | 12 | 90 | M | +ve | +ve |
| 5 | 13 | 403 | Baddur | Sagroli | 12 | 85 | M | +ve | +ve |
| 6 | 15 | 450 | Galegaon | Sagroli | 11 | 75 | M | -ve | +ve |
| 7 | 19 | 577 | Kunchali | Naigaon | 7.5 | 90 | M | +ve | +ve |
| 8 | 20 | 610 | Kuntur | Naigaon | 11 | 80 | M | -ve | +ve |
| 9 | 21 | 645 | Door | Biloli | 11 | 95 | M | +ve | +ve |
| 10 | 25 | 773 | Koleborgaon | Biloli | 9.5 | 65 | M | +ve | +ve |
| 11 | 27 | 818 | Pimpalgaon | Biloli | 10 | 75 | M | -ve | +ve |
| 12 | 30 | 911 | Kunturr | Naigaon | 11 | 90 | M | +ve | +ve |
| 13 | 32 | 963 | Ajani | Sagroli | 8.5 | 100 | M | +ve | +ve |
| 14 | 34 | 1030 | Sugaon | Sagroli | 7 | 90 | M | +ve | +ve |
| 15 | 35 | 1053 | Sugaon | Sagroli | 5 | 80 | M | -ve | +ve |
| 16 | 41 | 1140 | Mugaon | Naigaon | 6.5 | 85 | M | +ve | +ve |
| 17 | 42 | 1153 | Degaon | Biloli | 7 | 80 | M | +ve | +ve |
| 18 | 46 | 1188 | Adampur | Sagroli | 8 | 80 | M | +ve | +ve |
| 19 | 50 | 1245 | Dhanora Bk. | Ambajogai | 12 | 90 | F | +ve | +ve |
| 20 | 53 | 1275 | Dhanora Bk. | Ambajogai | 10 | 85 | F | -ve | +ve |
| 21 | 54 | 1323 | Dhaswadi | Ambajogai | 8 | 95 | F | +ve | +ve |
| 22 | 56 | 1350 | Dhavaadi | Ambajogai | 7 | 76 | F | +ve | +ve |
| 23 | 61 | 1404 | Mandva (PT.) | Ambajogai | 5 | 80 | F | +ve | +ve |
| 24 | 64 | 1417 | Murti | Ambajogai | 10 | 75 | F | +ve | +ve |

## IV. SUMMARY: -

The overall occurrence of trypanosomosis in donkeys was 4.42 % (64/1447) with higher rate (6.41 %) in young (03 to 06 years) followed by 5.03 % in 0 to 03 years of age, 4.59 % in 12 and above, 3.17 % in 6 to 9 age group and at lower extent the 9 to 12 years of age group was affected i.e. at 1.41 %. The majority of trypanosomosis was observed in male donkeys (4.91%) as compared to female (3.03 %). The spot diagnosis was performed by wet blood mount preparation on field itself and other diagnostic tests employed were ESR junction mount, microhaematocrit method, stained thick and thin blood smear examination and were carried out in laboratory of COVAS, Parbhani. The per cent efficacy of different diagnostic tests i.e., Wet mount preparation, stained thick blood smear, stained thin blood smear, Microhaematocrit method, ESR junction mount was 70.83 %, 75.00 %, 83.33 %, 95.83 % and 100 %respectively. Thus, Erythrocyte sedimentation junction mount and Microhaematocrit method revealed high sensitivity.

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