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PRELIMINARY RESEARCHES ON SAND ACCUMULATION IN THE ALIMENTARY CANAL OF RECREATIONAL RIDING HORSES

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Abstract. Six warm-blooded horses in the age of 6 till 16, were researched. The horses were divided into two groups: experimental and testing (each per 3 horses). In the first stage the trial was taken up to estimate the grade (rank) of sand accumulation in the alimentary canal of all horses with using the floatation test. In the second stage the experimental group with the given foragegot the supplement of *Plantago Psyllium* seeds in the amount of 210 g per horse per day during 7 days. The researches revealed that preventive supplement of *Plantago Psyllium* seeds three times increases the amount of sand excreted from the alimentary canal. So using the supplement of *Plantago Psyllium* seeds can prevent the excessive of sand concentration in horses alimentary canal and this way decreases the risk of occurring the intestinal colic diseases – in the matter.

Keywords: colic, horses, intestines, *Plantago psyllium,* sand, sand accumulation

INTRODUCTION

Trough the specific structure of the digestive system, the horses are exposed to a frequent occurrence so – called colic [Petelicki 2004]. Colic are not a distinct disease but a group of diseases manifested by the distinct pain in the abdomen of an animal. Currently, the group counted more than 30 cases of a similar cause and mechanism of formation [Saba et al. 2003]. Sand content of stomach and intestinal is increasingly common cause of colic among horses. In due course to his death. The cause of sand content in the gastrointestinal tract of horses can be downloading the contaminated sand feed grazing on pastures with sward insufficient for what animal eats grass with the roots of contaminated soil and drinking water from puddles [Saba et al. 2003, Bargiełowski et al. 2007, Darul 2007]. In the case of mineral deficiency is also observed direct eating soil by a horse [Sikora et al. 2005]. As a result of the increasing frequent droughts, shortage of space in a given number of pastures for horses and low quality feed, it is impossible to completely eliminate the risk of stomach and intestinal sand content in horses. Prophylactic use of agents assisting removal

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of s in accumulated in the digestive tract, it may prevent the occurrence of adverse effect, including colic. No research were conducted in this country, on the sand content of digestive tract in horses and the prophylactic use of *Psyllium* plantain seeds although the Polish market sells this kind of product, in literature, it is recommended that their administration in order to reduce the sand content [Sikora et al. 2005, Bargiełowski et al. 2007, Król 2009]. The aim of the conducted research was to estimate sand accumulation in alimentary canal in recreational horses and influenced giving horses *Plantago psyllium* seeds on excreted sand.

MATERIAL AND METHODS

In research was conducted in the recreational stable. Six warm-blooded horses (4 mares and 2 geldings) in the age of 6–16 took part in the experimental. Horses were kept in the same environmental conditions regarded zoohygenic and breeding view. Horse were fed on good quality smashed oats three times a day in the amount ap. of 1.5 kg plus 400 g of granulated feedstuff supplement. High quality of hay was added to each feeding in the amount of 7 kg a day for each horse. Everyday for a couple of hours horses used paddocks where they were extra fed on hay. The experiment was divided into two stages. The first stage of research was to take three samples of excrement during three weeks (20.12.2009–18.01.2011) in order to estimate the rank of sand accumulation of horses alimentary canals whit a flotation test. Next horses were divided into two groups: experimental and control (3 horses in each one). The experimental group (horses number 4, 5 and 6) was given the supplement of *Plantago psyllium* seeds with the feedstuff in the amount of 70 g per horse to each feeding (210 g per horse per day). The testing group (horses number 1, 2 and 3) wasn't given the supplement of *Plantago psyllium* seeds. Excrement's sample from the experimental and testing group were taken three times in the second day of experiment, the next two samples – in two days intervals. The flotation test excrement sample (each 10 kg – the freshest if possible) was taken from the stable to avoid accidently pollution of sand. The sample was falling down at the bottom of the container. Gradually separated from all the sample, sand was dived, then weighted.

RESULTS AND DISCUSSION

The experiment was conducted during winter time when low temperature and snow cover minimized taking sand by horses with grass or puddles water. Because of this, the cause of sand's presence in intestines was mainly pollution of given feedstuff, mainly hay and oats despite high quality. Though the part of sand was gradually mounting in the alimentary canal. In according to Hammock et al. [1998] clinical healthy animals with we were experimentally given sand, removed it from alimentary canal during 5–11 days. The author state that 20% of sand may stopped in alimentary canal and cause a risk for the animals health. There is some impediments due to physiological movement of removing

sand. It causes a risk for accumulation in alimentary canal and may lead to manure coming only under surgery treatment with a great risk of horse's death. Bargiełowski et al. [2007] informs on coincidences of rinsing ap. 4 kg of sand from alimentary canal – during horse's surgery – with a hard symptom of colic. That's why it is more often recommended using supplement with *Plantago psyllium* as one prophylactic way of sand accumulation in horse's alimentary canals. High contents of mucus and fiber in plantain peels causes light purging protective results and alimentary canal. Kulesza [2007] suggest that giving prophylactic amount of preparation during each month (first days). The conducted experiences, in the first stage, shows sand presence in alimentary canals of all horses. The separated amount of sand from excrement samples was 1.33–2.55 g (Fig. 1) so it was balanced what is evidently due to identical conditions of support and feeding tested horses. The experimental horses didn't shown any changes in behavior and fall of form despite the presence of sand in alimentary canal. It appears that the small amount of sand excreted in excrement (1.33–2.55 g) doesn't create any characteristic complaints. Goluchowski and Widuch [2007] also inform on early lock of symptoms in sand accumulation in alimentary canals.

Fig. 1. Average amount of isolated sand (g) from each horses in the first stage of experiment

Rys. 1. Średnia ilość odseparowanego piachu (g) od poszczególnych koni, w pierwszym etapie doświadczenia

In the second stage of experience part of horses were given the supplement of *Plantago psyllium* seeds (in the amount of 210 g per day per horse) recommended by Kulesza [2007]. During the first two days, the experimental group of horses unwillingly took the blend of feedstuff with *Psylium's* seeds. The similar reaction describes Kulesza [2007] offering to give new preparations on the base of plantain which contains many varieties of taste supplement. As the Fig. 2 shows, the control group which wasn't given the supplement of *Psyllium* seeds, the average amount of sand excreted with excrement hasn't changed.

The different situation was observed in experimental group as shows the third graph. According to the date in the graph, in the experimental group it was observed the significant sand increase excreted with excrement. The average separated amount of sand – in the experienced group was 8.7 g (Fig. 3) – so it was averagely, three times higher than in control group. As follows, horses automatically excrete averagely three times less of sand amount than after giving supporting supplements *Plantago* seeds. The result is that the supplement of *Psyllium* effected beneficially on horses alimentary canal, successfully making the possibility of removing the deposition of sand from organism. The similar observation was made by Hotwagner and Iben [2008]. The authors compared the influence of mineral oil in connection with the amount of excreted sand from horses alimentary canal. The research showed significant differences in the amount of excreted sand- in four of the group receiving mineral oil with the preparation of *Psyllium*.

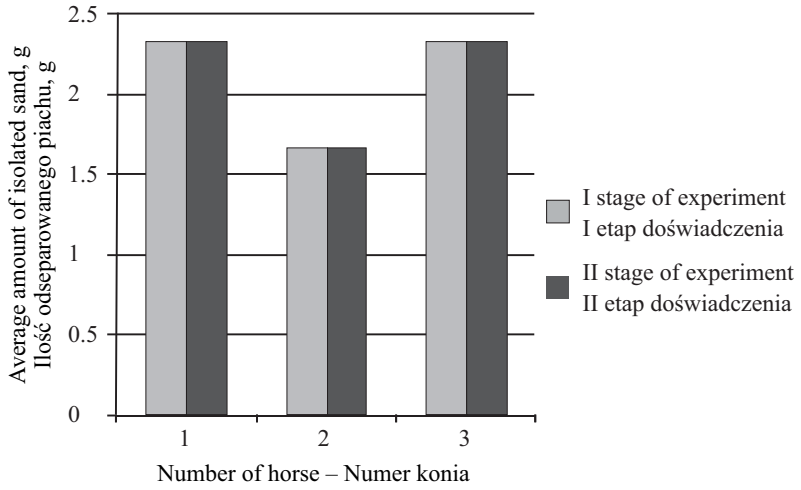

Fig. 2. Average amount of isolated sand (g) testing group in the first and second stage of experiment

Rys. 2. Średnia ilość odseparowanego piachu w (g) u koni z grupy kontrolnej w I i II etapie doświadczenia

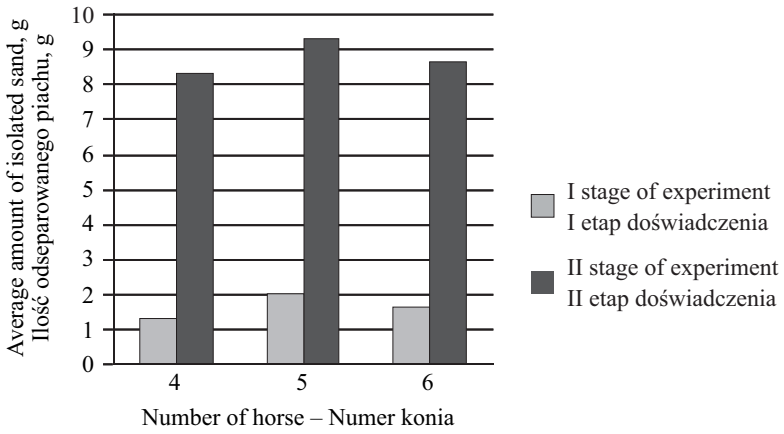

Fig. 3. Average amount of isolated sand (g) from experimental group in the first and second stage of experiment

Rys. 3. Średnia ilość odseparowanego piachu (g) u koni z grupy doświadczalnej w I i II etapie doświadczenia

CONCLUSIONS

This experiment showed that sand presence in the alimentary canal of recreational used horses, which were fed traditional and good quality feedstuff and also exist in opportunely environmental conditions. This showed necessity increased attention horse's holder, because even if ensure perfectly environmental conditions and also high quality feeding stuff can't including sand accumulation in the alimentary canal. The researches revealed that preventive supplement of *Plantago psyllium* seeds three times increases the amount of sand excreted from the alimentary canal. So using the supplement of *Plantago psyllium* seeds can prevent the excessive of sand concentration in horses alimentary canal and this way decreases the risk of occurring the intestinal colic deseases – in the matter.

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WSTĘPNE BADANIA NAD ZAPIASZCZENIEM PRZEWODU POKARMOWEGO KONI UŻYTKOWANYCH REKREACYJNIE

Streszczenie. Badaniami objęto 6 koni gorącokrwistych w wieku od 6 do 16 lat. Konie podzielono na grupę doświadczalną i kontrolną (liczące po trzy konie). Badania przeprowadzono w dwóch etapach. W pierwszym etapie podjęto próbę określenia stopnia zapiaszczenia jelit u wszystkich koni z wykorzystaniem testu flotacji. W drugim etapie grupa doświadczalna wraz z zadawaną paszą przyjmowała dodatek nasion babki płesznik w ilości 210 g na konia na dzień przez 7 kolejnych dni. Badania wykazały, że profilaktyczne podawanie koniom nasion babki płesznik trzykrotnie zwiększa ilość piasku wydalanego z przewodu pokarmowego. Stosowanie dodatku nasion *Plantago psyllium* może więc zapobiegać nadmiernemu gromadzeniu się piasku w przewodzie pokarmowym koni, a tym samym zmniejsza ryzyko wystąpienia schorzeń kolkowych na tym tle.

Słowa kluczowe: jelita, kolka, konie, piasek, *Plantago psyllium,* zapiaszczenie

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