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### **The content of bioactive compounds in colostrum of cows fed with natural and synthetic sources of beta-carotene**

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Colostrum of cows is a valuable source of nutrients and bioactive compounds such as immunoglobulins, lactoferrin, lysozyme, proline-rich polypeptide, vitamins and pro-vitamins. It is the first food for young calves but is also used in the pharmaceutical and cosmetic industries. Bovine colostrum has been used in the treatment of gastrointestinal diseases, infectious diseases and assisting the treatment of neurological diseases and preparations accelerating wound healing and skin regeneration. The aim of the study was to determine the impact of increased doses of synthetic and natural  $\alpha$ -carotene for cows in the dry period recently on the chemical composition of colostrum. Research was conducted on 40 cows Simmental breed in the Experimental Institute of Animal PIB Odrzechowa. The animals were divided into four groups of 10 individuals. The effect of ration for cows in the dry period recently, enriched with natural and synthetic beta-carotene on the chemical composition of colostrum. The control group-1 was fed grass and maize silages and concentrate additive, in the second group additionally introduced 400 mg/day/animal. Natural beta-carotene, in the third group was introduced to the silage pumpkin (replacing it partly silage corn, so as to obtain the above and 400 mg of beta-carotene to the control group) and in the fourth group of 50% corn silage replaced silage balancing pumpkin beta-carotene. The colostrum was collected from all cows 5 hours after calving and determined basic composition of colostrum immunoglobulin content in it, antioxidant status and content of carotenoids in the colostrum. The study showed no effect of rations on the basic composition of colostrum. It was found higher levels of immunoglobulin IgM antibodies in the colostrum of cows receiving silage with a pumpkin as a source of carotenoids. In the analyzed carotenoids colostrum of Group-4 characterized by significantly higher concentrations of beta-carotene compared to the control group-1. The lowest total antioxidant potential characterized by the colostrum of cows from the control group-1 and the difference was statistically significant only between groups-1 and 3.

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