A $K$-algebra of finite dimension $n + 1$ is called dimensionally nilpotent if there is a derivation $d$ such that $d^{n+1} = 0 \neq d^n$.

In this paper, following a previous paper by M. Osborn in which dimensionally nilpotent Jordan algebras were studied, Bernstein and genetic algebras that are dimensionally nilpotent are considered.

The main result obtained in the paper is the following: Let $(A, \omega)$ be a dimensionally nilpotent Bernstein algebra over a field $K$, $\text{ch} K \neq 2$. Then the ideal $N = \ker \omega$ is nilpotent and hence $A$ is genetic.

In particular, gametic algebras $A = G(2, 2m)$ and $G(n + 1, 2m)$ are considered. It is proved that $G(2, 2m)$ is dimensionally nilpotent for every $m \geq 1$ and $G(n + 1, 2m)$ is dimensionally nilpotent if and only if $m = 1$ or $n = 1$.

Finally, with the help of the duplicate algebra, it is proved that the zygotic algebra $Z(n + 1, 2m)$ is dimensionally nilpotent if and only if $m = 1$ and $n = 1$.

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