Analysis of Physiological Characters and Deterioration Mechanism of Seed in *Ceratoides L.*

Xuemin Wang
Chinese Academy of Agricultural Sciences, China

Hongwen Gao
Chinese Academy of Agricultural Sciences, China

Zan Wang
Chinese Academy of Agricultural Sciences, China

Jin Yi
Inner Mongolia Agricultural University, China

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Analysis of physiological characters and deterioration mechanism of seed in *Ceratoides .L*

Xue-min Wang[1] , *Hong-Wen Gao*[1] , *Zan Wang*[1] , *Jin Yi*[2*]
[1] *Institute of Animal Science , Chinese Academy of Agricultural Science , Beijing 100094 , China ;*[2] *Inner Mongolia agriculture university , Hohhot 010018 ,* * *Corresponding Author (E-mail : yijin@163 .com)*

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Introduction *Ceratoides . L* is a xerophytic or extreme-xerophytic shrub genus which has 7 species in the world , mainly distributing in the arid and semi-arid region of the north temperate zone . There are 4 species and one variety in China . *Ceratoides .L* is highly nutritious and locally important as the source of livestock fodder , especially in over-wintering in arid region . In addition , it has necessary ecological and economical value . However , *Ceritoides . L* seed has a short lifetime and the seed production is a limitation to exploit this resource . The aims of this study were to analyze the physiological characterization of *Ceratoides .L* seed and to illustrate the seed deterioration mechanism .

Materials and methods Seven *Ceritoides* accessions of 3 species collected from China were used in the study . Seed vigor index (SVI) was estimated using the method of Abdul-Baki and Anderson (1973) . Phosphate and nitrogen contents of seeds were measured using Molybdenum Blue Method and Kjeldahl nitrogen determination (Kjeldahl .J 1883) . High Performance Liquid Chromatography (HPLC) was applied to determine the sugar and endogenesis phytohormone contents . Data was analyzed by using SPSS 10 program (SPSS , Chicago) .

Results and analysis
The seed vigor There existed significant differences between intra-and inte-species on seed vigour . *C . arborescens* processed the highest SVI , while *C . latens* had the lowest .
The nutrient content of seed *Ceratoides* . seeds belong to low-sugar type . There were not obviously differences in sugar content between accessions . The correlation between sugar content and SVI was lower . While significant differences appeared between nitrogen content and SVI or phosphate content and SVI between intra-and inter-species . The P and N content of *C .arborescens* seeds were remarkably higher than that of others . The correlation coefficient between P and SVI was 0 .86** and that between N content and SVI was 0 .73* .
The phytohormone content of seed There was obviously no correlation between the endogenesis phytohormone content and SV , but the low-vigor seeds (*C . latens* xinjiang ecotype and *C . latens* cold-desert ecotype) has higher inhibitive hormone content than that of the high-vigor seeds . The radio of inhibitive /positive type of this two reached 0 .14 and 0 .12 , respective .

Discussion The P , N content may be an important factor which induced the difference of SVI existed between intra-and inter-species . The seed vigor is significantly correlated with N and P content , not with sugar content . This may be because that the *Ceratoides L* seed belong to protein type seed . It can be suggested that the relative content (inhibitive hormone/positive hormone) is one of the determinant factor effecting seed vigor .

There are two possible reasons for the seed deterioration . First , the *Ceratoides* seeds developed to low-nutrition seed during the long process of evolution . The seed deteriorated immediately during storage because of the inadequate nutrition . In addition . , *Ceratoides* seed is productive and a single seed contains low-level nutrition , hence , influence the seed life . The adverse live-space in arid and semi-arid region leads to the low nutrition and the water-lack hinders the transformation of nutrition from leaf to endosperm , and ultimately the seed vigor is reduced .

Reference
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