

November 12, 1992

RESEARCH REPORT: PINELANDIA BIOPHYSICAL LAB.**LABORATORY Code: KS-01-29**

PLANT MATERIAL: Grass plants (no roots) - in plastic bags.

FORMATION: Omaha, Nebraska - appeared after a thunderstorm on 7-11-92-"some strange depressions in the grass - formations did not resemble those in the UK"- three samples from different regions in the depressions -two control sets from area "farther away".

COLLECTED BY: Dr. John Kasher, Omaha, Nebraska.

COMMENTS ON SAMPLES: The samples were received on 7-17-92 and as the plants were removed from the plastic bags there was a noticeable difference in the amount of dead leaves in the formation sets compared with the controls.

In order to quantitatively relate these differences, the total leaves and the dead leaves were tabulated in each sample group. A leaf was counted as dead if over 50% or more of the leaf was brown or necrotic. Yellow or chlorotic leaves were not counted as being in this necrotic category. In the table below, plants from both control groups were included as one sample.

<u>SAMPLE</u>	<u>TOTAL LEAVES</u>	<u>NECROTIC LEAVES</u>	<u>NECROSIS</u>
CONTROL	137	11	8%
*1	231	44	19%
*2	250	88	35%
*3	233	116	50%

CELL WALL PIT EXAMINATION: The outer cell layers near the leaf epidermal tissue had well formed cell wall pits which under normal illumination were sufficiently outlined for diameter measurements. Both green and necrotic tissues were examined; however, the green tissue was used in the quantitative measurements since the pit diameters were quite variable in the cell walls of the dead tissue.

<u>SAMPLE</u>	<u>PIT DIA. (microns)</u>	<u>N-PITS</u>	<u>DIA. CHANGE</u>
Cont.*1	2.70 s.d. 0.56	30	-----
Cont.*2	2.69 s.d. 0.44	30	-----
*1	2.91 s.d. 0.41	30	+7.8%
*2	*3.34 s.d. 0.74	30	+23.7%*
*3	*3.29 s.d. 0.66	30	+22.3%*

*-P<0.05

Comments:

It is interesting to note that the significant cell wall pit expansions were found in the two samples (*2 & *3) exhibiting the highest percentage of necrotic leaves. There are two aspects of the pit diameter data which are in accord with recent findings in other formations - one is the much higher variance in the samples showing significance and the second is the fact that the magnitude of the change is within the narrow range seen in other formations (around 23%). These factors are not seen in "artificial formations" or in controls (for example see Report *9). Overall it is difficult to place a high probability on these samples since other factors such as seedling development etc. were not examined.



Dr. W.C. Levengood