

Lecture

Unknown Mode of Action - Difenzoquat

1. General Information

Several herbicides are currently registered where the specific mode of action is not known.

2. Possible Modes of Action

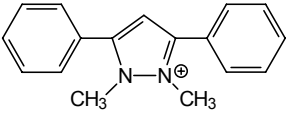
Proposed mechanisms of action for difenzoquat include inhibition of nucleic acid synthesis, photosynthesis and ATP production, potassium absorption, and phosphorous incorporation into phospholipids and DNA.

3. Site of Action - Unknown

4. Symptoms

- following foliar application plant growth ceases and injury symptoms appear after 3 to 7 days.
- meristematic areas become chlorotic followed by general foliar chlorosis and necrosis.

5. Herbicide Family - None

Difenzoquat	
Example	<div style="text-align: center;">  <p>difenzoquat (Avenge)</p> </div>
Metabolism	<p><u>plant</u> – does not metabolize appreciably</p> <p><u>soil</u> – not degraded appreciably by microbes</p> <p>half-life – less than 28d</p>
Absorption & Translocation	<p>absorbed rapidly into foliage</p> <p>translocation very limited from leaves to older plant parts</p>

Selectivity	selective – not known
Herbicide Use	wild oat control used POST in barley and wheat; certain hard red spring wheat cultivars are sensitive

6. References

Ahrens, W. Herbicide Handbook, seventh edition. 1994. Weed Science Society of America, Champaign, IL.

Devine, M.D., S.O. Duke, and C. Fedtke. Physiology of Herbicide Action. 1993. Prentice Hall, NJ.

Stryer, L. Biochemistry – fourth edition. 1995. W.H. Freeman, NY.