|  |  |  |
| --- | --- | --- |
|  |  | LAB -7- |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

 |    | **Mitosis in *Allium cepa*  root tips**

|  |  |  |
| --- | --- | --- |
| http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.1.gif | http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.2.gif | http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.3.gif |

**1.** Support a Allium cepa over water. Leave until the roots develop, (3 - 4 days).**2.** Cut off the root tips 1 - 2 cm long. Put them in a small volume of [acetic alcohol](http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ssheet17.htm#acetic) for 10 minutes.**3.** Wash root tips in ice cold water for 4 - 5 minutes, then dry them on filter paper.

|  |  |  |
| --- | --- | --- |
| http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.4.gif | http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.5.gif | http://www-saps.plantsci.cam.ac.uk/worksheets/ssheets/ss_gifs/17.6.gif |

**4.** Transfer root tips 1M hydrochloric acid for 5 minutes. Repeat step 3. Take care - they will be very fragile.**5.** Transfer two root tips to a clean microscope slide. Cut each root tip about 2 mm from the growing tip. Keep the tips, discard the rest.**6.** Macerate the root tips with a mounted needle. Add one small drop of Geimza stain for 2 minutes.**7.** Cover with a cover slip. **8.** View under the microscope (x400 magnification is adequate) and look for cells with chromosomes.**5.** Calculate the mitotic index. **Mitotic index = number of cells containing visible chromosomes divided by the total number of cells in field of view**-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------                         |