In-vitro Study of Mollugo cerviana Leaf Extract on Staphylococcus Sps. Isolated from mobile phones.

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ABSTRACT
Micro – organisms are omnipresent. Thus, the pages on which we pen down our imagination are also the habitat for these microbes, with this in mind,we isolated micro – organisms from The mobile phones of students, staffs, workers and cleaners of our College, By using The cotton swabs. By gram – staining and observation under the microscope, Cocci were observed. On performing various biochemical tests such as catalase, oxidase, starch hydrolysis, gelatin, we identified the organisms to be a species staphylococcus sps . Antibacterial test were performed in – vitro using Mollugo cerviana leaf extracts to study its role on the inhibition of this pathogen. A standard borewell method was employed.

Keywords- Mollugo cerviana, Staphylococcus ,Catalase test, Oxidase test, Mobile phones.

INTRODUCTION
Microorganisms like bacteria are omnipresent ,which exist either as Cocci or rods. Among the Cocci, Staphylococcus sps., E.coli sps., Bacillus sps. And Diplobacillus sps. are some common examples. Staphylococcus sps. is a gram-positive bacterium that appears as a grape like clusters1. The Staphylococcus genus has about thirty-three species. Most of them are harmless and reside normally on the skin and mucous membranes of humans and other organisms. Also found worldwide, they are a small component of soil microbial flora. Staphylococcus can cause a wide variety of diseases in humans and other animals through either toxin production or invasion. Toxins from this organism is a common cause of food poisoning2. When food is improperly stored.

Mollugo cerviana (Molluginaceae) is an ancient medicinal plant known as threadstem carpetweed native to India, Sri Lanka, Pakistan and Bangladesh.Common folk in India uses this plant for healing skin diseases. Mollugo cerviana is an indigenous medical plant. It has been prescribed in Ayurveda as an alterative, treatment of various ailments like rheumatism, piles fever, skin diseases and snake bite3. while the leaf, stem, and root extracts of this plant are important in the management of various ailments.

MATERIAL AND METHODS
Materials
Petridish, cotton swabs, boiling tube, NA media , gelatin, iodine, inoculation, alcohol, spirit lamp,etc.

Method
Using basics concepts of microbiology. We prepared agar media, blood agar media as a nutrient media (S.S.FINECHEM. LIMITED, MUMBAI.)bacteria needs agar media i.e. Na media for its growth .Now we isolated the bacteria by swabbing with the cotton swabs on the mobile phones and applied it on NA media plate .Now we incubated it for 18 hour at 37°C and we observed white coloured colonies on NA media plates .We sub cultured the already prepared bacteria and thus we obtain NA media plate containing a pure culture, we did gram staining using the gram’s iodine , crystal violet stain , safranin , alcohol and bacterial pure culture and we performs biochemical test such as starch hydrolysis , gelatin test, indole test , methyl red test, catalase test and oxidase test.

Observation:
The results for various biochemical tests are given in the table:1
Table 1: Results of various biochemical tests

<table>
<thead>
<tr>
<th>Tests</th>
<th>Inference</th>
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<tbody>
<tr>
<td>GRAMS STAINING</td>
<td>+</td>
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<tr>
<td>STARCH HYDROLYSIS</td>
<td>- ve</td>
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<tr>
<td>GELATIN HYDROLYSIS</td>
<td>+ ve</td>
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<tr>
<td>INDOLE TEST</td>
<td>-</td>
</tr>
<tr>
<td>CATALASE TEST</td>
<td>+ ve</td>
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<tr>
<td>OXIDASE TEST</td>
<td>+ ve</td>
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<tr>
<td>METHYL RED TEST</td>
<td>+ ve</td>
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</table>

Note: Gram – staining and biochemical tests indicated that the micro –organism was Staphylococcus sps.

Figure 1: Bacterial Culture

Figure 2: Pure Bacterial Culture

Figure 3: Gram staining of *staphylococcus species* (gram positive cocci)

Figure 4: Oxidase Test(A is Positive)

Figure 5: Catalase test(Bubbles indicates positive)
Figure 6: Starch hydrolysis test

Figure 7: M.R Test (pink colour indicates positive)

Figure 8: Gelatin test (slant liquid indicates positive)

Figure 9: Indole test (negative)

Figure 10: Crude Juice of *Mollugo cerviana*

Figure 11: Anti bacterial test
RESULT

The bacteria which were isolated from mobile phones were found to be Cocci. These were confirmed to be Staphylococcus sps. Based on biochemical tests such as catalase, oxidase, methyl red and gelatine test, which were positive; whereas the starch hydrolysis and indole tests showed a negative result, this confirmed the presence of Staphylococcus sps. The antimicrobial effect using the crude extract of Mollugo cerviana was conducted. Crude extract which was extracted from organic solvent showed an antibacterial property against pathogenic bacteria.

DISCUSSION AND CONCLUSION:

We concluded that the organism isolated from the mobile phones was found to be Staphylococcus, in-vitro antibacterial tests using a crude juice of Mollugo cerviana on Staphylococcus showed a clear zone of inhibition. Pathogenic bacteria like Staphylococcus can cause a wide variety of diseases in humans and other animals through either toxin production or invasion. Staphylococcal toxins are a common cause of food poisoning, as it can grow in improperly-stored food. In year 2009, scientist I.H. Kilic observed mobile phone can spread infectious diseases by its frequent contact with hands. Our study concludes that this ‘medicinal plant’ showed a ‘antibacterial property against pathogenic bacteria.

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REFERENCES

