GUIDELINES TO AUTHORS

1. Original research articles and short communications in the field of Veterinary and Animal Sciences are accepted for publication.

2. Papers are accepted for publication on the understanding that
   a. The paper submitted has not been published before and also it is not being considered for publication elsewhere.
   b. The authors shall also certify that they are responsible for any legal disputes arising out of infringement of copyrights, plagiarism, under or misrepresentation of facts and that the editorial board shall not be held responsible for the above said actions under any circumstances.
   c. All authors are jointly responsible for the contents published in the article. The editorial committee under no circumstances shall be responsible for the contents published in the article.
   d. The concurrence of all authors in the prescribed format given below for publication of the article is necessary.
   e. The papers on completed original research must be concise. The bulk of paper should record the actual work done by the authors.

3. Only online mode of submission is accepted.

4. The article should be typewritten (A4 page) in British English, Times New Roman font (double space) with font size 12.
5. The format for research article (should not exceed fifteen typed pages)

- **Title**: Font size 14, Sentence case, left aligned in bold
- **Author(s)**: Initials first, font size 12, right aligned in bold
- Affiliation: Address of institution with affiliation where the work was carried out should be mentioned at the top. Each author should be superscribed with numbers which should be explained as a footnote at the end of first page itself in italics. Phone number and email id of corresponding author (*) are to be given.
- **Abstract**: (about 250 words)- font size- 12, in italics
- **Keywords**: 3-4 keywords- in italics
- A short running title
- **Introduction** (without heading)
- **Materials and methods**: (One level subheadings only, if any – in sentence case, bold, italics)
- **Results and discussion**: Results and discussion should be combined to avoid repetition (One level subheadings only, if any – in sentence case, bold, italics)
- **Conclusion**
- **Acknowledgements**: if any
- **Conflict of Interest**: 
- **References**: Hanging indent.

6. The format for short communication (should not exceed five typed pages)

- **Title**: Font size 14, Sentence case, left aligned, bold
- **Author(s)**: Initials first, font size 12, right aligned in bold
- Affiliation- Address of institution with affiliation where the work was carried out should be mentioned at the top. Each author should be superscribed with numbers which should be explained as a footnote at the end of first page itself in italics. Phone number and email id of corresponding author (*) are to be given.
- **Abstract**: (about 150 words)- font size- 12, in italics
- **Keywords**: 3-4 keywords- in italics
- A short running title
• The body of the article should have no divisions. It should contain minimum tables or figures.

• Summary

• Acknowledgements if any

• Conflict of Interest:

• References- Hanging indent.

7. The article should be headed with the full title, initials and surnames of all authors and the name and address of the institution where the work was carried out. Authors are requested to expand each scientific abbreviation at its first occurrence in the text. Eg. Complement Fixation Test (CFT). The abbreviation presented in "System internationale" for Units and Symbols should be adopted.

8. All the references cited in the text of article should be listed at the end of the paper in alphabetical order with the name of all authors followed by their initials. The author(s) name, the year of publication, title of the article, name of the journal (abbreviation of journal in italics), volume number in bold type and page numbers should be included. Abbreviation for the title of the journal should be in accordance with the "World list of scientific periodicals".

1. Text books

Do not abbreviate the titles of books. Write them in ‘Title case’ italics. In the case of textbooks and theses, give total number of pages. For example: a book of 420 pages shall be listed as 420p. In the case of an edited book, give the first and last page numbers of the chapter as pp. 33-68.

**Book by one author**

**Book by two authors**

**Book by more than two authors**

**Book by a corporate (group) author**

Note: In-text citation “(KVASU, 2012).”

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Format: Author(s), Year, Title of the article, Journal title (abbreviated, in italics), Volume number (bold), Issue No. in parenthesis, page numbers.

Name of the article in a journal shall be in ‘Sentence case’. The title of a thesis shall also be like a journal article (i.e. in ‘Sentence case’). While writing names of journals, use standard journal abbreviations. Common journal abbreviations are given in the Annexure. Include volume and issue number, if each issue is paginated separately. In the case of journals that follow continuous page numbering for a particular volume there is no harm in omitting the issue number. Give inclusive pagination (i.e. first and last page numbers of the article), eg. 23-28.

General rules for journal abbreviations:

- One-word journal titles are never abbreviated, e.g., “Nature”, “Science”, “Biochemistry”, “Biotechnology”, etc.
- Some words in the titles are not abbreviated but written as such, for example: Acta, Cell, Dairy, Drug, Tissue, Methods, etc.
- Certain country or city names are abbreviated, for example: Am. for American, Br. for British, Can. for Canadian, Jpn. for Japanese, Calif. for Californian, Lond. for London, Camb. for Cambridge, etc. However, some country names, such as India/Indian, Sweden/Swedish, etc. are not abbreviated.
- All the abbreviations in the journal should start with a capital letter.
- Put a period after the abbreviation, for example: J. (Journal), Sci. (Science), Rev. (Review), etc.

Journal article by one author

Journal article by two authors

Journal article by multiple authors

Journal article accepted for publication (but not yet published)

Thesis
Proceedings

Conference abstract

Technical bulletin/series/reports

Patent

Article from a weekly

Article from a newspaper (with author)

Article from a newspaper (without author)

Note: In text citation: “(Anon., 2013).”

3. Electronic and online sources
Only reliable sources may be considered while using online references. Generally, websites maintained by reputed Universities, institutes and organizations can be considered as authentic sources. The details required for electronic sources are basically the same as those required for print sources. The additional information that is required is the type of medium, the address or URL (uniform resource locator) and the date of access from the internet.
**Article in an online journal / e-journal**

**Book available only on the internet**

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- In the case of entries by the same author in different years, arrange chronologically by the year of publication, the earliest first.

- References with the same first author and different second and subsequent authors are listed alphabetically by the surname of the second author and then by the surname of the third author and so on.

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5. **More than one book/journal article by the same author in the same year**

- References by the same author (or by the same group of authors in identical order) with the same publication year are listed alphabetically by the first word of the title following the year; lower case letters (a, b, c and so on) are included after the year within the parenthesis.


- If the articles are published in the same journal arrange by volume number. Chronologically, and if in the same volume, arrange by page number.
9. Tables and figures should bear the reference number (Table 1, Table 2, Fig. 1, Fig. 2 etc) and the title in Sentence case should be written on the top of table and below the Figure. Page limit is inclusive of figures and tables. Colour illustrations are accepted.

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13. Conflict of interest should be declared

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18. Article reference number provided in the acknowledgement should be quoted in all correspondences pertaining to the article.
Qualitative and quantitative analysis of methanol extract of *Crataevanurvala* stem bark

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Citation:

Abstract

Medicinal plants are precious source of bioactive compounds which possess a range of beneficial properties and they remain the major source of medicine for a large proportion of population in this world. From ancient time, *Crataevanurvala* was used as a vital herb in Ayurvedic system of medicine. According to Unani system of medicine, bark of *C. nurvala* is used as an appetite stimulant and as an agent to decrease the secretion of bile and phlegm. In the present study, methanol extract of stem bark of *C. nurvala* was analysed for preliminary phytochemicals and chemical profiling of the extract was illustrated using gas chromatography and mass spectrometry (GC-MS) analysis. The phytochemical analysis revealed that the plant extract contained alkaloids, steroids and triterpenoids. Gas chromatography mass spectrometry analysis determined the presence of different compounds of biological importance. The identification and characterisation of the phytoconstituents in the extract could pave the way for the discovery of new drugs for various ailments.

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**Keywords:** Crataevanurvala, triterpenes, alkaloids, steroids

Running title: Qualitative and quantitative analysis of *Crataevanurvala* stem bark

Medicinal plants are valuable source of naturally active phytochemicals. They are the naturally occurring chemical compounds found in plants which provide health benefits for humans and animals. These compounds commonly known as secondary plant metabolites have been attributed to have different biological properties providing protection against various diseases.

*Crataevanurvala* Buch-Ham., commonly known as Varuna, Neermathalam, BarnaChal, belonging to the family of Capparidacea, is a moderate sized deciduous tree. A variety of medicinal properties have been reported for *C. nurvala* and its stem bark. It has been traditionally used in treating blood flow, waste elimination, breathing problems, fever, metabolic disorders, joint lubrication and wound healing (Vashist *et al*., 2020). Mekapet *et al.* (2011) determined the antiurolithiatic activity of *C. nurvala*. Root and bark are documented to be laxative, lithotripsic and was found to increase the appetite and biliary secretion (Fletcher, 1993; Malini *et al*., 1995). The ethanol and aqueous extracts of the dried stem bark of *C. nurvala* have been found to possess significant anti-fertility effects in rats (Bhaskar *et al*., 2009). The antidiarrhoeal activity of ethanol extracts of *C. nurvala* stem bark has been reported by Inayathulla *et al.* (2010). *Crataevanurvala* stem bark extract exhibited antidiabetic activity against alloxan induced diabetic albino rats in the study done by Sikarwar and Patil (2010). Thus, the present study was carried out to evaluate the various phytochemical constituents present in the bark of methanol extract of *C. nurvala* which would be helpful to delineate the various biological activities shown by the stem bark.

**Materials and methods**

**Plant collection and identification**

The bark of *C. nurvala* was collected from Valluvanad, Palakkad, Kerala (Fig. 1 and 2). The collected plant material was identified and its authenticity was confirmed by Raw Material Herbarium and Museum (RHMD), NISCAIR, New Delhi, India.
Preparation of extracts

Freshly collected bark of *C. nurvala* were cleaned to remove adhering dust and then dried under shade. The dried bark was coarsely powdered using an electric pulveriser and the powder obtained was extracted using a Soxhlet apparatus with methanol at 67 °C. The methanol extract was then concentrated using a rotary vacuum evaporator under reduced pressure and temperature (40 °C). The yield of the extract was calculated using the formula: Yield value (%) = Extracts obtained/Total amount of crude drug × 100, and kept under refrigeration in an airtight container after complete evaporation of the solvent for further use.
**Qualitative phytochemical analysis**

The extracts were tested for the presence of bioactive compounds using methods described by Harborne (1998). Fifty milligrams of the extract were dissolved in 3 mL of chloroform. Few drops of concentrated sulphuric acid were added and the solution was allowed to stand. Formation of red colour directed the presence of steroids.

**GC-MS analysis**

The active phytochemical principles of methanol extract of *C. nurvala* was analysed using GC-MS system of Centre for Analytical Instrumentation- Kerala (CAI-K), Kerala Forest Research Institute (KFRI), Peechi, Kerala. The GC-MS analysis was carried out on Gas chromatography Mass Spectrometer (Shimadzu GC-MS, Japan, QP2010SE) with a mass range of 1.5-1000 m/z. Helium at a flow rate of 1 mL/min was used as the carrier gas. The oven temperature was maintained at 80 °C for 4 min and then increased to 280 °C in 6 minutes. The injector temperature was 260 °C and total analysis time was 50 minutes. Aliquot of the extract (0.4 µL) was injected into the chromatographic column after obtaining a clear baseline. The interpretation of the mass spectrum of GC-MS was guided using the database of the National Institute of Standards and Technology (NIST 11) and WILEY 8. The spectrum of the unknown compounds was related with the spectrum of the known compounds. The name and molecular weight of the compounds of the tested materials were ascertained.

**Results and discussion**

**Qualitative phytochemical analysis**

The qualitative phytochemical screening of methanol extract of stem bark of *C. nurvala* showed the presence of steroids, triterpenoids and alkaloids (Arunima, 2011). Phytochemical screening of methanol extract of stem bark of *C. nurvala* revealed the presence of steroid and terpenoids as well as alkaloids, phenolics, flavanoids, tannins and saponins (Hade et al., 2016) which supported our results. Sodipoet al. (2000) have reported that alkaloids have been
associated with medicinal uses for centuries and one of their common biological properties is their cytotoxicity. Huang et al. (2016) isolated six phytosteroids and nine known triterpenoids from the leaves of *Chisocheton cumingianus* in which chisopanoids E and F exhibited potent cytotoxicities towards MCF-7 with IC$_{50}$ values of $3.24 \pm 1.39$ and $8.85 \pm 4.73$ μM, and were further proved to prevent the cell proliferation, mainly by inducing apoptosis. Haque et al. (2008) isolated two terpenoids, phragmalin triacetate and lupeol from ethyl acetate extract of stem bark of *C. nurvula* by chromatographic techniques. Jain et al. (2016) suggested that terpenoids were capable of inhibiting NFκB through different mechanisms. Khatun et al. (2015) evaluated the antioxidant, anthelmintic, antimicrobial and phytochemical assessment of ethanolic extract of *C. nurvula* leaves and displayed the presence of alkaloids, flavonoids, reducing sugar, saponins, steroids, tannins. The above mentioned phyto constituents are described to exhibit various pharmacological activities (Table 1).

**Table 1.** Results of analysis of calculi in Fourier Transform Infrared Spectrometry with Attenuated Total Reflectance (FTIR-ATR)

<table>
<thead>
<tr>
<th>Functional Group Assignments</th>
<th>Animal no.</th>
<th>Reported IR wavelength (cm$^{-1}$)</th>
<th>Standard IR wavelength of pure struvite (cm$^{-1}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-O-H stretching vibrations of water of crystallization</td>
<td>A$_1$</td>
<td>3401.94</td>
<td>3270</td>
</tr>
<tr>
<td></td>
<td>A$_2$</td>
<td>3391.81</td>
<td></td>
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<tr>
<td></td>
<td>A$_3$</td>
<td>3500-3350</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A$_4$</td>
<td>3360.29</td>
<td></td>
</tr>
<tr>
<td>H-O-H stretching vibrations of a cluster of water molecules</td>
<td>A$_1$</td>
<td>-</td>
<td>2385</td>
</tr>
<tr>
<td></td>
<td>A$_2$</td>
<td>2331.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A$_3$</td>
<td>2346.67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A$_4$</td>
<td>2321.69</td>
<td></td>
</tr>
<tr>
<td>H-O-H bending modes of vibrations</td>
<td>A$_1$</td>
<td>1440.19</td>
<td>1445</td>
</tr>
<tr>
<td></td>
<td>A$_2$</td>
<td>1434.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A$_3$</td>
<td>1434.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A$_4$</td>
<td>1441.17</td>
<td></td>
</tr>
<tr>
<td>N-H symmetric stretching vibrations in NH$_4^+$ units</td>
<td>-</td>
<td>-</td>
<td>2935</td>
</tr>
<tr>
<td>N-H symmetric</td>
<td>A$_1$</td>
<td>3401.94</td>
<td>3270</td>
</tr>
<tr>
<td></td>
<td>( A_2 )</td>
<td>3391.81</td>
<td>( A_3 )</td>
</tr>
<tr>
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</tr>
<tr>
<td>N-H symmetric</td>
<td></td>
<td>-</td>
<td></td>
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<tr>
<td>stretching vibrations</td>
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<td></td>
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<tr>
<td>vibrations in NH4+</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>units</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-H bending</td>
<td>( A_1 )</td>
<td>1670.28</td>
<td>( A_2 )</td>
</tr>
<tr>
<td>vibration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-H asymmetric</td>
<td>( A_1 )</td>
<td>995.16</td>
<td>( A_2 )</td>
</tr>
<tr>
<td>bending vibration in</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>NH4+ units</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ionic phosphate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( A_1 )</td>
<td>995.16</td>
<td>( A_2 )</td>
</tr>
<tr>
<td>Standard values used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>as per Bindhu et al., 2012</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**GC-MS analysis**

The results of GC-MS analysis of methanol extract revealed the presence of twenty-one compounds. The GC-MS chromatogram of twenty-one compounds is depicted in Fig. 3. Thymine, 3-hydroxy-2,3-dihydromaltol, 5-hydroxymethylfurufural, n-methyl-3-hydroxymethyl pyrrolidine-2-one, cytidine, methyl pentofuranoside, undecane, 6,6-dideutero-5-methyl-, 2,4-ditert-butylphenol and 3-deoxy-d-mannoic lactone were the major compounds.

**Fig. 3.** GC-MS chromatogram of methanol extract of *C. nurvala* stem bark
Balamurugan et al. (2019) have done the chemical profiling of methanol bark extract of C. nurvala using GC-MS technique. The study revealed the presence of 8 components such as lup-20 (29)-en-3ol, 2-hydroxy-4-methoxybenzaldehyde, methoprene, 1'-acetonaphthone, 1, 2-bis (Trimethylsilyl) benzene, pivalate, cyclotrisiloxane, limonen-6-ol and 4-hexadecen-6-yne.

The recognised major compounds in our study possess some significant biological activities for future drug development. Zhao et al. (2013) showed that 5-hydroxymethylfurfural (5-HMF) induced apoptosis and G0/G1 cell cycle arrest in human melanoma A375 cells. Takuliet et al. (2020) elucidated the antioxidant and antibacterial activity of Woodwardia unigemmata (Makino) along with chemical characterisation which revealed the presence of 3-hydroxy-2,3-dihydromaltol in GC-MS analysis. Azizi et al. (2006) performed fast gas chromatography/ time of flight mass spectrometry (TOF-GCMS) which identified N-methyl-3-hydroxymethylpyrrolidin-2-one from the oil extract of Pithecellobium jiringan jack seeds which was found to abolish excess free radicals and counteract oxidative damage. Suet al. (2005) evaluated the antioxidant activity of methanol extract of Morinda citrifolia (Noni) fruits and the purification of its butanol soluble partition of methanol extract contained isolates like cytidine. Shaheed et al. (2018) identified methyl pentofuranoside, also known as alpha-d-mannofuranoside, from methanolic fenugreek seed extract and determined its antibacterial activity against Streptococcus agalactiae, Escherichia coli, Enterococcus cloacae and Proteus mirabilis. Gas chromatography mass spectroscopic analysis exhibited the presence of undecane, 6,6-dideutero-5-methyl- in Nigella sativa, Allium sativum, Propolis and Olea europaea mixture which was depicted as antibacterial and antifungal agent (Bintanget al., 2018). Chuah et al. (2015) suggested that 2,4-di-tert-butylphenolinduced oxidative stress through the generation of reactive oxygen species, which cause lipid peroxidation and membrane damage in root tissues and chloroplast in leaf tissues, thus leading to increased levels of antioxidant enzymes. Shobana et al. (2009) in their study identified compounds such as 3-deoxy-d-mannoic lactone and thymine from two varieties of garlic (ophioscordon and sativum) which was found to possess antibacterial activity.
against enteric pathogens. The aforesaid isolated compounds from the methanol extract of \textit{C. nurvala} stem bark seemed to own the reported biological activity and further study of these phytoconstituents may demonstrate the medicinal importance in future. The biological activities of other compounds have not been reported so far and more study of these phytoconstituents might validate the significant medicinal features in forthcoming.

**Conclusion**

The association among the phytochemical constituents with their biological activities is now being the matter of advanced thought. \textit{Crataevanurvala} is a deciduous medium sized tree, traditionally used in the treatment of kidney stones, urinary tract infection and prostate related disorder. The present study has revealed \textit{C. nurvala} to be rich in various phytochemicals. The existence of these phytochemical constituents indicated that the bark of the plant could be used in a variety of ways which would be beneficial to the population. Gas chromatography mass spectroscopic analysis revealed the presence many compounds presumed to be responsible for eliciting the traditional medicinal activities of the bark of the plant.

**Acknowledgement (If any)**

**Conflict of interest**

The authors declare that they have no conflict of interest.

**References**


Copro-polymerase chain reaction for molecular identification of 
*Haemonchus contortus* in goats

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Citation:

**Abstract**

*Haemonchus contortus* commonly called as stomach worm or wire worm of ruminants inhabit the abomasum and is considered as one of the economically important gastrointestinal strongyles in goats. In the present study, *H. contortus* was identified by PCR using the primers targeting partial 5.8S and partial internal transcribed spacer region 2 (ITS-2). Adult worms were identified morphologically and genomic DNA was extracted using DNeasy Blood and Tissue kit (QIAGEN, Germany). Gradient PCR protocol was standardised using the extracted genomic DNA. Ten-fold serial dilution of adult DNA was used to analyse the minimum detection limit and the products were amplified upto tenth dilution. Cross reaction of primer sets was checked using the DNA extracted from predominant adult strongyles like *Oesophagostomum columbianum* and *Trichostrongylus colubriformis* and no cross reaction was seen at the optimum annealing temperature (60.7°C)

**Keywords:** *Haemonchus contortus*, goats, PCR, ITS-2

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2. Assistant Professor
3. Assistant Professor, Department of Veterinary Microbiology
4. Professor and Head

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Haemonchus contortus belong to Trichostrongylidae family and are commonly called as stomach worm or wire worm of ruminants. The adult worms attach to the abomasal mucosa of small ruminants and due to its haematophagus nature it causes anaemia, jowl oedema and even death in young ones. Adult worms are identified based on morphological features. But identification of nematode species based on features of strongyle egg is difficult during coprological examination. Coproculture aided in species identification but it takes seven to ten days to identify the infective larvae (Fletcher, 1993). Hence, molecular identification was undertaken in this study as a tool for species level identification.

Table 1. Composition of reaction mix for PCR to identify infective larvae of *H. contortus*

<table>
<thead>
<tr>
<th>Components</th>
<th>Quantity (μL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 X PCR buffer (without MgCl₂)</td>
<td>2.5</td>
</tr>
<tr>
<td>dNTP (10 mM each)</td>
<td>0.50 (200μM each)</td>
</tr>
<tr>
<td>Primer forward</td>
<td>1 (10 pmol)</td>
</tr>
<tr>
<td>Primer reverse</td>
<td>1 (10 pmol)</td>
</tr>
<tr>
<td>Magnesium chloride (25 mM)</td>
<td>1.50 (1.5mM)</td>
</tr>
<tr>
<td><em>Taq</em> polymerase (5 IU/μL)</td>
<td>0.20 (1U)</td>
</tr>
<tr>
<td>DNA template</td>
<td>5</td>
</tr>
<tr>
<td>Nuclease free water</td>
<td>13.3</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
</tbody>
</table>

After performing gradient PCR, the amplicons were subjected to agarose gel electrophoresis in 1.5 per cent agarose gelat 80V, 400mA for 35 min and the gel was visualised in Gel Doc™EZ imager and documented using Image lab software. The amplicons were purified and sequenced at AgriGenom labs private limited, Cochin using Sanger’s di-deoxy nucleotide chain termination method.
Male tail end had well developed bursa with elongate lateral lobes which was supported by an asymmetrical dorsal lobe. Dorsal lobe was placed on the left lateral lobe which was supported by an inverted Y shaped dorsal ray. Whereas, female had barber’s pole appearance which was due the coiling of white ovaries wound around the red intestine (Soulsby, 1982). *Haemonchus contortus* has been identified as the predominant strongyle species in goats in different places including Kerala (Deepa, 2005), North-West India (Kumar et al., 2008) Malaysia (Chandrawathaniet al., 2009), Kashmir (Irfan-ur-Rauf-Taket et al., 2013) and Ethiopia (Chalchisai et al., 2015).

Sensitivity of *H. contortus* primer sets was checked using ten-fold serial dilution and the ability of primers to amplify minimum DNA concentration was analysed. The initial concentration of DNA used for sensitivity study was 4.7 ng/µL and ten-fold serial dilution was performed. PCR products were amplified up to tenth dilution which showed that the primer pairs could amplify DNA with minimum concentration of 4.7 ag/µL (attogram per microlitre) (Fig. 1).

![Image](image1.png)

**Fig. 1.** Amplicons of *H. contortus*
Lane M: 100 bp ladder
Lane 1-10: Ten-fold serial dilution *H. contortus* DNA

The specificity of primer was cross checked with DNA of other important strongyles like *Oesophagostomumcolumbianum* and *Trichostrongyluscolubriformis* to detect the cross amplification between species.
Summary

The study forms the basis for developing copro-polymerase chain reaction for detecting *H. contortus* infection in goats. Specific detection of this pathogen from clinical samples would aid in initiating timely control measures.

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Conflict of interest

The authors declare that they have no conflict of interest.

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