Doxycycline and Clotrimazole. This research observed the antimicrobial activity of methanolic flower crude extract of *H. rosa-sinensis* and 1,2 Benzene discarboxylic acid were showed better inhibition activities than corresponding drugs.

5. Discussion

5.1. Medicinal plants

Medicinal plants have been used for the treatment of diverse ailments for thousands of years. Even with the advent of allopathic medicine, using plants for medicinal purposes is still prevalent in many parts of the world (Siew et al., 2014). According to the World Health Organization estimates that up to 80% of the people in developing countries still depend on local medicinal plants to fulfil their primary healthcare needs (WHO, 2002). Historically, plants have been traditionally used for ages to cure ailments. Today, over 70% proportion of patients and healthcare providers in the world rely on herbal medicines directly or indirectly for meeting their health care needs (Sofowora et al., 2013).

The indigenous medicinal practices can provide valuable information for discovery of new and more effective drugs. A historical perspective on the use of medicinal plants for the treatment and cure of disease shows that traditional medicinal practices have been associated with humanity since ancient times (Halberstein, 2005).

Since the dawn of civilization, plants are in use as sustenance end medicine. Statistics reflect that nearly 80% of the global population uses plants for their primary health care (Barkatullah et al., 2015) Plants are extensively being screened for therapeutic phytochemicals and lead compounds (Katiyar et al., 2012). An estimated 25% of prescription drugs and 11% of drugs considered essential by WHO are derived from plants and a large number of synthetic drugs are obtained from precursor compounds isolated
Identification and characterization of antimicrobial compounds from selected ethnomedicinal plants of Silent Valley (Western Ghats, Kerala) with emphasis on Venereal diseases

Sivasankari et al, (2013) study informed the people have been using medicinal plants from time immemorial for the treatment of various types of disease traditionally. Traditional medicinal plants use in India is about 4000 years old. Herbs had been used by all cultures throughout history. From time immemorial, several human diseases have been treated with medicinal plants based traditional medicinal information (Olorunnisola et al., 2013). The value of such information is thus regarded far more than a significant anthropological or archeological finding (Choudhury et al., 2012). In many developing countries, Traditional Medicine is commonly used as it is an accessible and affordable treatment while Complementary Alternative Medicine is popular in developed countries (Bussmann et al., 2011). Traditional medicines are an important source of drugs in rural areas. Traditional medicine is used worldwide and is of great economic importance. In the 21st century, there has been a growing interest in public health in both developed and developing countries. In this sense, traditional medicine has been taking on more and more importance in the eyes of national governments (Bussmann, 2013).

The use of local knowledge is particularly common in rural and remote areas, especially among ethnic minorities. Indigenous people and ethnic groups throughout the world have developed local knowledge and medicinal practices that are often unique to individual communities. The enormous biological and cultural diversity in South east Asia is reflected in the variety of traditional systems of medicine. In India 20%, of all native plant species are used as drugs, in China 19%, in Vietnam and Sri Lanka 17%, and in Thailand 16% (Junsongduang et al., 2014).

Ethnomedicinal studies are significant for the discovery of new drugs from indigenous medicinal plants. Right from the commencement of ethnobotany, with special emphasis on the documentation of traditional medicinal knowledge of plants, has discovered a number of modern drugs (Ahmed et al., 2014). Many diseases have no
Identification and characterization of antimicrobial compounds from selected ethnomedicinal plants of Silent Valley (Western Ghats, Kerala) with emphasis on Venereal diseases

effective cure in allopathic medicine, and antibiotics used for treatment of microbial diseases are fast losing their efficacies because of the emergence of drug resistant vectors. Thus there is a need of new and effective drugs. Studies have been initiated to gain knowledge about traditional health care systems of indigenous communities in various parts of India (Chander et al., 2014). Treatment of diseases with medicinal plants is more beneficial than synthetic and modern medicines as, ease of use, treatment efficacy, affordable cost and minimal side effects. In third world regions medicinal plants are preferred as mode of treatment for diseases. It is estimated that more than 80% of developing nations, purely rely on indigenous medicinal plants for health care needs (WHO, 2002; Alfred Maroyi, 2011).

5.2. Ethnobotanical investigations

Ethnobotanical studies have shown the existence and use of traditional medicine in worldwide. Traditional herbs have been used to manage infectious as well as non-infectious diseases. In the study, 102 ethno medicinal plants species belonging to 53 families distributed in 95 genera which were commonly used by the most of the local traditional healers for the treatment of 52 types of ailments in traditional healers of Silent Valley, Kerala. Here, mostly utilized species were Euphorbiaceae family. Euphorbiaceae is also known to have the highest number species, more than any other plant family in the world (Marles and Farnsworth, 1995). Now a day’s many people are interested in medicinal plant based treatments for disease and nutrient enrichment of the human body.

Among the families, Euphorbiaceae, Fabaceae and Rutaceae were recorded foremost in this study. These families also have highly recorded in other ethnobotanical studies (Vijayakumar et al., 2016) which can be attributed to their having a wide range of bio-active ingredients (Gazzaneo et al., 2005).

In this ethnobotanical investigation, the herbaceous plants are mostly used for the preparation of herbal remedies. Similarly, Ayyanar and Ignacimuthu, (2011) ethnobotanical documentation demonstrated the wealth of herbaceous plants medicinal
uses. Moreover, the Agasthiyar hills harbours study has also showed the strength of herbs than others like trees, shrubs, and climbers (Prakash et al., 2006).

This medicinal plant documentation the plant parts of leaves are more dominant usage for diseases. Not only this study, all over the world tribal and local communities people are mostly utilized for the preparation of herbal medicine by using leaves (Ayyanar and Ignacimuthu, 2011; Ezekiel and Daniel, 2012; Gidey et al., 2011; Srithi et al., 2009; Teklehaymanot et al., 2007; Ullah et al., 2013). The reason why leaves were mostly is that they are very easy to collect when compared to other parts of plants (Giday et al., 2009) and the scientific reason is that the photosynthetic activity and secondary metabolite production more in leaves than other (Ghorbani, 2005).

End of the research, the collected ethnomedical information’s were indicated the types of preparations handled during the treatment from the study areas. Even if, this investigation pointed out the paste is dominantly used for herbal remedy preparation. According to the informants, preparation of paste for the treatment of ailments is a common method of the tribal communities in global level (Amri and Kisangau, 2012; Giday et al., 2010; Rajkumar and Shivanna, 2009; Ullah et al., 2013). The paste was prepared by grinding the fresh or dried plant parts with oil or water. The juice was taken as orally along with water or milk or honey, Raw (taken as raw plant parts orally), Decoction was obtained by boiling the plant parts in water until the volume of water reduce to required amount. Powder was prepared by the grinding of shade dried plant parts. Infusion was prepared by fresh plants parts are soaking into water through over night; inhalation was done by the burning of plant parts and inhaled the smoke through nose.

The most frequently used mode of remedy administration is oral ingestion (62%), followed by topical, bath, tooth brush, and nasal applications in study area. Today, most of the medicines were given orally which is an agreement with some other studies (Andrade-Cetto, 2009; Lee et al., 2008; Ullah et al., 2013). For topical uses still an important way of remedy administration to treat diseases like skin disorders, wounds, poison bites,
rheumatism, body pain, body strength, burns and head ache (Fernandez et al., 2003; Manual et al., 2005; Seyid et al., 2013).

Most of the reported, preparations were prepared by mixture of plant parts (Ignacimuthu et al., 2008; Upadhyay et al., 2010). In this study mostly fresh plant parts were used for the preparation of medicine. Similar findings were reported by Asase et al. (2010), Revathi et al. (2013). Gidey et al. (2011) reported, local traditional healers too frequently use other adjuvant like honey, milk, sugar, salt and oil to improve the acceptability and medicinal property of certain remedies. The preparation of paste/medicated oil were commonly used by the oil caster of coconut, gingelly, mustard, neem and pongam. Depending upon the diseases and age they were using specific plant parts and specific dosages for the treatment of patient to improve the health conditions.

5.3. Statistical analysis

*Moringa oleifera* is got superior use values than plants of this ethnobotanical investigation. But, the Thai traditional healers have used the plant *Moringa oleifera* in the treatment of cancer, to consume five leaves a day (Itharat and Ooraikul, 2007). On the other hand, these plants were frequently used by traditional healers of Eastern ghats of Tamilnadu (Samydurai et al., 2012) and local health care practices of Sikkim (Badola and Pradhan, 2013), India for treatment of various diseases.The very low use value *Solanum torvum*, *Nerium oleander* and *Passiflora foetida* which is reported by only one informants with a UV of 0.12 of which *Passiflora foetida* was a new claim and also used in headache, others are regularly using this plant in the treatment of body cooling and ear ache. Similar findings were supported with our study (Chellaiah et al., 2006; Itharat and Ooraikul, 2007; Seyid et al., 2013). Badola and Pradhan (2013) reported that plants in the study area leads to them low use value as in the case of Khangchendzonga Biosphere reserve, Sikkim. In the present study plants reported with a low use value (2 use reports by 8 informants with a UV of 0.25) were *Amaranthus spinosus*, *Cyclea peltata*, *Hybanthus enneaspermus*, *Mangifera indica* and *Ruta graveolens*. Of them *Mangifera indica*, is reported to have a
very low UV of 0.11 among the local people south west khangchendzonga, Sikkim for treating cough and sore throat (Badola and Pradhan, 2013). This report conformed to on present study.

Badola and Pradhan, (2013) study showed the ailments oncology and pills had highest Fic 1.00 among the noorails tribes in erode district and cuts and wound have the highest Fic of 0.91 among the limbo health care practices in Sikkim. Achyranthes aspera, Mimosa pudica and Sida acuta were very normally used for the treatment of cuts and wound in this studies. An observation Seyid et al. (2013) the highest Fic is 0.21 on the contrary our survey exemplified the lowest Fic is 0.63. This confirms the present findings were supported by Revathi et al. (2013). This study observed the dermatological infections, gastrointestinal ailments and respiratory system diseases were mostly treated using plants with 34, 30 and 28 species respectively which was supported by Revathi et al. (2013). Respiratory system diseases had the lowest Fic of 0.63 but it is consider with ailment category which has place third rank in number of use reports (73) and number of taxa (28) attributed to this category. It may be due to the lack of communication among the informants in the study area who are practicing this ailment category (Rokaya et al., 2010). Seyid et al. (2013) reported that gastrointestinal, dermatological and respiratory diseases have a high informant consensus among the Alasehir people in Turkey. In the present study also confirmed their observation that these ailment categories had high number of use reports among local traditional healers with moderate Fic values.

In support to our study, 100% FL was reported in Discorea pentaphylla for respiratory system disease among the hooralis tribe in sathyamangalam forest, Tamil Nadu (Revathi et al., 2013)

5.4. Antimicrobial assay

Generally, plants produce an assortment of secondary metabolites that have for quite some time been important to man. These are using directly as precursors or as lead compounds in the pharmaceutical industry and they expect to show active target site than
using antibiotics against drug-resistant microbial pathogens (Parakh et al., 2008). Plants deliver an assortment of auxiliary metabolites that have for quite some time been important to man. As of late these are being utilized, either straightforwardly as antecedents or as lead mixes, in the pharmaceutical business and it is normal that plant separates indicating target destinations other than those utilized by antimicrobials will be dynamic against medication safe microbial pathogens.

In this study twelve medicinal plants were selected against the venereal disease causing pathogens. Previously, we conducted the ethnobotanical survey in tribal people of Silent Valley, Kerala. That survey recorded those medicinal plants uses against the Venereal diseases (Valgas et al., 2007). Similarly, Wet et al, (2012) reported 33 medicinal plants for the treatment of various sexually transmitted diseases and that related infections to the lay people of northern Maputaland in South Africa. An earlier study in Bangladesh, 10 plant species were recorded to be used to treat particularly in syphilis and gonorrhea (Hossan et al., 2010). Much more studies were screened the medicinal plant potentiality against different disease-causing pathogens by the way of antimicrobial work (WHO, 2006). This research was done with the support on earlier research works (Vuuren et al., 2010; Zander et al., 2010; Shokken et al., 2009).

The results of antimicrobial activity of medicinal plant extracts were shown promising activity against both fungal and bacterial strains. A total of twelve extracts belonging to 12 plant species were analyzed. Medicinal plant parts and their potentiality were shown against venereal causing pathogens in Table.2. The results showed *Hibiscus rosa-sinensis* good inhibition zone formation against the *Neisseria gonorrhoeae* pathogen 27mm. Chomnawang et al, (2009) displayed the potentiality of a medicinal plant against *Neisseria gonorrhoeae*. Another study reported the natural bioactive molecule *p*-methoxybenzyl isothiocyanate drug effectiveness through antimicrobial analysis against the pathogen of *Neisseria gonorrhoeae* (Mulaudzi et al., 2011) As like, previous
antimicrobial study Vuuren and Naidoo, (2010) 18 plant extracts were investigated against urogenital /sexually transmitted infections caused pathogens.

In general, commercially available antibiotics were induced serious side effects from the human being. Therefore, recent world seeking alternates therapy for avoiding risk and other factors from this problem-related treatment. Ethnopharmacology and natural product drug discovery remain a major hope in the modern target-rich, the lead-poor state of affairs (Shokeen et al., 2009). Recent scenario, herbal products are used much pharmaceutical industries (Moura-costa et al., 2012).

Based on the results, the flowers of *Hibisbiscus rosa-sinensis* represents maximum levels of inhibition zone against all bacterial pathogens. According to Vasu and Charya, (2010) antimicrobial study, the plant parts of flowers showed effective antimicrobial results against only bacterial strains. In the same way, methanolic leaves extracts of *Hibiscus rosa-sinensis* showed the highest zone of inhibition (26mm) with the concentration of 100mg/ml against *B. Substillis* (Liliwirianis et al., 2011). Above finding clearly indicated that flowers also having effective phytoconstituents.

Ruban and Gajalakhmi, (2012) research finding clearly indicated the methanolic extraction of *Hibiscus rosa-Sinensis* flower showed the highest zone of inhibition against *B. subtiliss* (18.86 ± 0.18) and *E. coli* (18.00 ± 1.63) mm. On the other hand, *Hibiscus rosa-Sinensis* hexane flower extract shows good inhibition zone formation to the pathogen of *E. coli* and *B. subtiliss* (Srivastav et al., 2015). Earlierly, Uddin et al, (2010) reported the antimicrobial effectiveness of *Hibiscus rosa-Sinensis* leaves with the concentration of 100mg/ml against *Staphylococcus aureus*. Not only this, the plant of *Hibiscus rosa-sinensis* is using various biological and pharmacological activities (Mak et al., 2012).

5.5. Molecular docking

A variety of computational techniques have been successfully utilized to design novel drugs and to unravel the mechanism behind the biological effects of a molecule
Identification and characterization of antimicrobial compounds from selected ethnomedicinal plants of Silent Valley (Western Ghats, Kerala) with emphasis on Venereal diseases

(Barrett et al., 2008; De Almeida et al., 2016). Computer-aided drug design (CADD) is presently a key component in the process of drug discovery and development, as it offers great promise to drastically reduce cost and time requirements (Ramos, 2015). Based on this pharmacophore knowledge active, high throughput virtual screening of database and molecular docking studies can be used to develop new and potentially more active compounds for the treatment of diseases and disorders (Pham and Jain, 2008; Meng et al., 2011).

Molecular docking approaches are routinely used in modern drug design to help understand drug receptor interaction. It has been shown in the literatures that these computation techniques can strongly support and help the design of novel, more potent inhibitors by revealing the mechanism of drug receptor interaction. Computer aided drug design (CADD) helps in identifying small molecules by orienting and scoring them in the active binding site a protein. By using Lipinski’s rule of five which was derived empirically from the world drug index is used to filter the drug for its capability of drug for human use.

Bhattacharjee et al, (2009) have handled the computational study the target of N. gonorrhea for analyze the novel and effective plant derived anti-biotic molecule. Recently, lots of researchers have been handling this molecular docking method to identify the suitable drug molecule for diseases.

5.6. 1, 2 Benzenedicarboxylic acid and its function

Flowers of Hibiscus rosa-sinensis are used as an antiseptic for skin irritation and ulcers (Divya et al., 2013). The Hibiscus rosa-sinensis flowers are having antioxidant properties (Khan et al., 2014; Rajesh et al., 2011) and Alkaline phosphotase enzyme activity (Salib et al., 2011), anti-cancer activity (Divya et al., 2013), anti-complementary, anti-diarrhetic and anti-phlogistic activity (Shimizu et al., 1993). It has also been reported that the plant’s flower possesses anti-spermatogenic, androgenic, anti-tumour and anticonvulsant properties (Dwivedi et al., 1997; Sethi et al., 1986). The reported biological
activities of *Hibiscus rosa sinensis* include anti-diarrhetic, anti-oestrogenic, anti-implantation abortifacient, anti-pyretic, anti-spasmodic, hypotensive, embryotoxic, anti-spermatogenic, insect attractant, analgesic, anti-fungal and anti-inflammatory properties (Singh, 1986; Zamora et al., 1992). Antimicrobial and antifouling activity, anti-diabetic, anti-oxidant and anti-cancer activity (Thanwar et al., 2017; Ingole, 2016; Senthilkumar et al., 2012; Shanab et al., 2010 and 2011), cytotoxic activity, anti-fungal, anti-microbial, anti-tumor, anti-diabetic, anti-cancer, anti-oxidant, anti-scabies, anti-inflammatory (Subha and Divakar, 2016; Save et al., 2015; Krishnan et al., 2014; Syeda et al., 2011; Balachandran et al., 2012; Bagavathi and Ramasamy, 2012).

5.7. **Spectral determination of 1, 2 Benzenedicarboxylic acid**

Determination of melting point of 1, 2 Benzenedicarboxylic acid was carried out using melting point apparatus using open capillary method (Cichewicz and Kouzi 2004). The melting point is 230°C.

UV spectrum of 1, 2 Benzenedicarboxylic acid (200 ppm) in methanol was taken and scanned in the range of 200-400 nm on UV spectrophotometer. UV-Vis spectra of compound indicates that absorptivity value is very less at all wavelength. λ_max of compound 1, 2 Benzenedicarboxylic acid observed 356nm by spectrophotometer.

The UV visible spectrum of methanolic flower extract of *Hibiscus rosa-sinensis* is show in figure. The absorption appears λ_max of compound 1, 2 Benzenedicarboxylic acid. Which are due to presence of conjugated single bond.

The FT-IR spectrum was used to identify the functional groups of the active components present in extract based on the peaks values in the region of IR radiation. The IR spectrum of methanol flower extract showed the distinct peak in range of 1872 cm⁻¹, 1654 cm⁻¹, 1248 cm⁻¹, 1067 cm⁻¹ and 780 cm⁻¹. The spectrum of IR peak at 1872 cm⁻¹ was referred as Vinyl terminal (Shaik et al., 2014). The peak observed at 1654 cm⁻¹ could be assigned to the C=O stretching which means that some aromatic acid compounds (Ahmad et al., 2017). The peak value at 1248 cm⁻¹ is owing to aromatic c-c (Komal Arora, 2015), and a
Identification and characterization of antimicrobial compounds from selected ethnomedicinal plants of Silent Valley (Western Ghats, Kerala) with emphasis on Venereal diseases

A peak at 1067 cm\(^{-1}\) represents the aromatic methane (Chaturvedula et al., 2012). Meta di substituted =C-H at 780 cm\(^{-1}\) (Fadare et al., 2015).

Mass spectroscopy (MS) was carried out to determine the molecular weight of isolated phytoconstituent. The molecular ion (M+1) peak was obtained at 166.0 m/z which correspond to the molecular formula C\(_6\)H\(_4\) (COOH)\(^2\) which is very nearly similar to the mass spectral data of piperine (Mol.wt.166.14).

Structure elucidation of the isolated compound was carried out using NMR spectroscopic techniques: \(^1\)H (400 MHZ) and \(^{13}\)C (100MHZ). The compound was identified as 1, 2 Benzenedicarboxylic acid. The \(^1\)H NMR spectrum (methanol, 400MHZ): 6.72 (Aromatic (Ar H) (Mohammed et al., 2017), 7.59 (Phenolic (Ar OH) (Znati et al., 2014), 7.80 (Amide (RC = o NH R) (Yu et al., 2006). The \(^{13}\)C NMR (Methanol, 100MHZ): 128.60 (C in aromatic Rings) (Kapoor and Jaggi, 2004) 131.40 (C=C (in alkenes) (Wang et al., 2016), 132.90 (C=C (in alkenes) (Elabbar et al., 2014), 168.80 (C=O (in acid & esters). This compound is reported for the first time from methanolic flower extract this plants species of \textit{Hibiscus rosa-sinensis}. The spectral data are in good agreement with the previous reports (Krishnan et al., 2014).

5.8. Antimicrobial activity of isolated compound

The crude extract of antibacterial activity \textit{H.rosa-sinensis} flower showed stronger antibacterial activity than that of leaves at 100 and 50 mg/ml was reported Borhan et al., 2010. Ethanolic flower extract of 100mg showed inhibition of 29,25, 24.24, 15,13,0 mm followed by 50 mg showed 26,18, 22, 18, 12,10, 0 mm against \textit{S.aureus}, \textit{P.vulgaris}, \textit{P.aeruginosa}, \textit{Citrobacter} species, \textit{E.Coli}, \textit{S.typhimurium}, \textit{K.Phenomonia} respectively. Similarly Yin et al., 2013 report that maximum inhibition of 14 and 12 mm was observed in 100 and 50 mg of ethanolic flower extract \textit{S.aureus} respectively. Aquaous extract of 100 mg and 50 mg also showed moderate inhibition activity of 11.5 and 9mm against \textit{S.typhimurium} respectively. Ruban and Gajalakhsmi et al., 2012 reported that methanolic extract showed maximum activity than that of ethanolic extract. Methanolic extract of flower showed inhibition of 14, 18, 17 mm against streptococcus species, \textit{B.subtilis} and
E. coli respectively. Whereas ethanol extract showed inhibition of 10, 12, 0.33, 15 and 16 mm against S. aureus, streptococcus species, B. subtilis, E. coli and P. aeruginosa respectively. Methanol extract of flower showed no activity against S. aureus, streptococcus species, and P. aeruginosa respectively. These findings where controversy to our present study 100 mg of methanolic extract showed maximum inhibition 22, 18, 24, 20, 18, 18 mm to S. aureus, N. gonorrhoea, C. trodchomatis, T. pallidam and C. albicans respectively. Acetone extract of 100 mg showed maximum shown of inhibition against B. subtilis. Ruban and Gajalakshmi et al., 2012 reported that methanol extract showed maximum inhibition 18 mm while in the present study also observed 18 mm but when compared to acetone extract showed higher zone of inhibition (21 mm).

Candida albicans is a dermatophyte, candidal fungi it causing skin disease and wound (Viswanathan et al., 2013). In this study, the methanolic flower extract showed potential antifungal activity (18 mm) against C. albicans. Similarly, Devi et al., 2014 has exhibited significant antifungal activity by methanolic flower extract of T. sinensis (18 mm zone of inhibition). 1, 2, Benzene dicarboxylic acid (10 ug) has showed potential antimicrobial activities of 28, 27, 26, 25 and 22 mm against N. gonorrhoea, S. aureus, C. trodchomatis, T. pallidam, and B. subtilis respectively. Krishanamoorthy et al, (2016) have isolated the molecule 1, 2, Benzene dicarboxylic acid from methanolic leaf extract of A. paniculata. In the present study, we report firstly the compound 1, 2, Benzene dicarboxylic acid methanolic flower extract of H. rosa-sinensis. Previous research findings reported that the compound posses excellent antimicrobial activity (Kabuki et al., 2000; Tian et al., 2009). Besides, the present study has showed better and equal inhibition activity against both gram positive and gram negative pathogens.

**From the above discussion it is concluded that**

- In this study, 102 plant species were documented in the study area. Among them, 12 medicinal plants were selected against venereal disease causing pathogens by the traditional information.
These medicinal plant parts were dried, powdered and then mixed with different solvents.

The prepared plant extracts were treated against all the venereal diseases causing pathogens.

The outcome of this experiment methanolic flower extract of *Hibiscus rosa-sinensis* has shown efficient antimicrobial activity than other plant part extracts.

Based on the analysis, we have chosen *Hibiscus rosa-sinensis* flower extract for identify the antimicrobial potential having phytochemical by using GC-MS analysis.

In this GC-MS analysis, the *Hibiscus rosa-sinensis* flower shows nine bioactive compounds.

Later, all the identified phytochemicals were docked with a protein molecule of Acetyltransferase domain of PglB (*Neisseria gonnorhea*) by using Computational approach.

In molecular docking, the 1-2,benzene dicarboxylic acid shows notable docking score and good binding affinities with a target.

Based on the docking study, that compound has isolated from the methanolic flower extract of *Hibiscus rosa-sinensis* by using TLC and CC.

Isolated product has characterized and checked by the different spectral analysis such as UV, FTIR, $^{13}$C, $^1$H and Mass spectroscopy.

This study confirmed the product is 1-2,benzene dicarboxylic acid based on the spectral analysis.

After identification, the 1-2, benzene dicarboxylic acid has prepared four different concentrations in methanol solvent and then treated against *Neisseria gonnorhea*. Among the four concentrations, 10µg/ml of 1-2,benzene dicarboxylic acid concentration is shows better inhibition activity against *Neisseria gonnorhea*. 