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Molecular identification of *Bougainvillea* in Jeddah province

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Abstract
Bougainvillea commonly known as paper flower and it is a popular plant that grows in Saudi Arabia. It contains a number of phytochemicals and small amounts of sugars. Many researchers showed it has traditional uses such as an antibacterial, anticancer, antidiabetic, antifungal and antioxidant. In our study, fresh young leaves of *Bougainvillea* were collected from King Abdul Aziz University and the total genomic DNA was extracted, purified using kit, then it was run and visualizedon1% of agarose gel electrophoresis. Our data showed that molecular weight more than 1 kbp was examined. This study provided further support for using DNA extraction as a molecular characterization for species belonging to *Bougainvillea* in Jeddah province.

Keywords: *Bougainvillea*, molecular identification, Jeddah, Saudi Arabia, DNA

1. Introduction
Bougainvillea (Family: Nyctaginaceae), is a popular plant over the world, and it is a very common in Saudi Arabia, especially in Jeddah providence. This plant has a many phytochemicals like glycosides, flavonoids, tannins, quinones, triterpenoids, phenols, sterols, and a small amount of sugars [1]. Genus *Bougainvillea* was first discovered in Brazil by a French navigator named Louis Antoine de Bougainvillea, in 1786 [2, 3].
Many researchers showed that *Bougainvillea* has traditional uses such as an antibacterial [4, 5], anticancer [6], antidiabetic [7], antifungal [8], antioxidant [9]. There are only a few studies were conducted the molecular identification of *Bougainvillea* including, developmentaction researches [10], linkage researches [11].
Much of the identification work of *Bougainvillea* has been done in many countries; however, very little data is available in the identification in Saudi Arabia and especially in Jeddah province. Therefore, this database will provide clear results of *Bougainvillea* molecular identification in Jeddah.

2. Materials and methods
2.1 DNA Extraction
Leaves of *Bougainvillea* as in Fig. 1 were collected from King Abdul Aziz University. Genomic DNA was extracted using Thermo Scientific gene Genomic DNA purification Kit (#K0722), with minor modifications. One petal of fresh young leaves was ground with 180 µl of digestion solution and 20 µl of proteinase K in a 1.5 ml tube using pipetting. The sample was incubated at 56 C° for 30 minutes. 20 µl of RNase was then added and mixed by pipetting and left for 5 mins at room temperature. 200 µl of lysis solution was added and mixed for 15 seconds. After that, 400 µl of 50% ethanol was added and mixed until a homogenous mixture was obtained. Then, the mixture was transferred to the purification column inserted in a collection tube, centrifuged for 1 min at 8000 rpm. The flow-throw solution was discarded.500 µl of wash buffer (I) was added and centrifuged for 1 minute at 10000 rpm, the flow-throw solution was discarded. 500 µl of wash buffer (II) was added then and centrifuged for 2 minutes at 12000 rpm, the flow-throw solution was discarded. In the final step, 100 µl of elution buffer was added and centrifuged for 2 mins at 12000 rpm. The purified DNA was stored at -20 °C.

2.2 Gel electrophoresis
Afte purification, DNA fragment was analyzed through 1% agarose gel electrophoresis using 1X TAE buffer at 150 V for 45 mints. A 1k bp ladder was loaded in first well as a marker. The gel was visualized by staining with Ethidium bromide (1µl/10ml) and the bands were seen under UV light.

Fig 1: *Bougainvillea* collected from King Abdul Aziz University.

3. Results and Discussions

Molecular data provide the basic knowledge for understanding taxonomy, domestication and evolution of plants. In this study, DNA extraction and purification of fresh leaves using kit showed clear results. The resulted more than1k bp was examined on 1% agarose gel electrophoresis. Genetic diversity of a large number of *Bougainvillea* cultivars has been estimated.

In another study, amplified fragments containing repeated sequence was also reported [12]. In the present study the DNA extraction and identification were found satisfactory up to 100%. Many molecular studies have become available, for characterization of a genotype at the genomic level in India [13], but not in Saudi Arabia**.** Latterly, [14] found that RAPD was used for the identification of its need a littlea mount of DNA to make numerous polymorphisms**.** In another study, [15] studied that the morphological traits are usually used since they provide a simple technique.

4. Conclusions

We conclude from the present study that DNA isolation and purification is a powerful technique. The information obtained will give clear results to the researchers who will work on *Bougainvillea* in Jeddah province.

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