

# Mediflora Detector for Homo Sapiens

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**Abstract**—An inventive web-based tool called the Mediflora Detector for Homo Sapiens was created to offer comprehensive information about medicinal plants. The system retrieves information about a plant's potential to treat chronic illnesses, dosage variations depending on personal circumstances, and suggested modes of consumption when a user scans the plant. In order to increase public awareness of the medicinal applications of plants and support individualized healthcare, this paper examines the idea, architecture, and operation of the Mediflora Detector. With its extensive medicinal plant database, machine learning, and cutting-edge plant recognition technology, Mediflora looks to be a useful resource for both medical professionals and those looking for natural cure

**Index Terms**—The integration of machine learning in herbal medicine enhances medicinal plant identification through AI-powered recognition and deep learning. Image processing and computer vision improve accuracy, while adaptive dosage prediction ensures personalized treatment. Health informatics bridges traditional medicine with AI, making herbal remedies safer and more effective. The digitalization of herbal medicine enables smart systems for precise dosage recommendations. This approach advances human-centered AI in natural healthcare solutions.

## I. INTRODUCTION

One of the difficult things is the lengthy procedure. In recent years, the use of medicinal plants to treat chronic illnesses and enhance general health has increased.

However, a lot of people are not well-informed about the precise medicinal qualities of these plants, how much to take, or how to consume them safely. This ignorance frequently results in abuse or inefficient care. One innovative way to deal with these issues is the Mediflora Detector for Homo Sapiens. Users can obtain up-to-date information about a plant's therapeutic qualities, recommended dosage, and preparation techniques by just scanning. The design

and implementation of the Mediflora Detector, which combines a personalized dosage system, thorough database of medicinal plants, and plant recognition technology, are covered in this paper. Historically, various cultures like Ayurveda, Traditional Chinese Medicine, and Indigenous practices have long relied on the platform of data inclusion and reduction. Additionally, Mediflora serves as an educational tool, bridging the gap between traditional healing methods and modern medical practices, offering complementary solutions for both patients and healthcare providers. With the increasing shift toward preventative medicine and the global wellness movement, Mediflora is positioned to play a crucial role in helping users make informed decisions about their health, fostering a greater understanding of the healing potential that plants offer.

## II. RECOMMENDATION AND REVIEW

### 1. Review on Medicinal Plant Database and Knowledge Management Systems

**Review:** Medicinal plant databases often lack standardization in the classification of plants, making it difficult for users to access reliable and consistent information. A more centralized and standardized approach is necessary to ensure the accuracy of the data provided to users.

**Recommendation:** Authors suggest creating comprehensive, multi-disciplinary platforms that integrate data from botanists, medical professionals, and traditional healers. They also recommend implementing data validation mechanisms to ensure that information on medicinal plants is both accurate and scientifically backed.

### 2. Review on Image Recognition and Plant Identification

**Review:** The accuracy of plant identification systems is still a challenge due to the variety of plant species and the need for highly detailed images.

Existing systems often struggle with distinguishing plants that look similar or identifying them in different growth stages.

Recommendation: Many authors recommend improving image recognition algorithms using deep learning techniques, including convolutional neural networks (CNNs), to increase the accuracy of plant identification, especially in varying environmental conditions.

### 3. Review on Personalized Dosage Recommendations

Review: Personalized health solutions are increasingly recognized as critical for ensuring safe and effective treatment, but existing systems lack the sophistication needed to provide personalized herbal medicine dosages. Many platforms still offer generalized recommendations.

Recommendation: Researchers suggest incorporating AI-driven algorithms that consider a user's specific health condition, weight, age, and genetic makeup to provide tailored dosage recommendations. Additionally, user feedback loops should be included to help refine these recommendations over time.

### 4. Dosage Recommendations for Herbal Medicine

Review: Personalized health solutions, particularly in the context of herbal medicine, are gaining significant attention for their ability to ensure safer and more effective treatment. However, most current systems still offer generalized dosage recommendations that do not take into account individual factors like health conditions, age, weight, and genetics.

This one-size-fits-all approach may lead to suboptimal outcomes, as different individuals may respond to medicinal plants in varying ways.

Recommendation: To address these gaps, researchers recommend implementing AI-driven algorithms that analyze a user's health profile, including age, weight, existing health conditions, medications, and genetic makeup, in order to provide personalized and accurate dosage recommendations.

### 5. Machine Learning for Adaptive Dosage Prediction in Herbal Medicine

Review: Current dosage recommendations for herbal medicine are often generalized and do not account for individual variations such as metabolism, pre-existing conditions, or drug interactions. Traditional models

fail to adapt dynamically to patient-specific needs, leading to potential inefficacy or adverse effects.

Recommendation: Researchers suggest using machine learning models, such as regression-based algorithms and neural networks, to predict personalized herbal dosage. By training models on large datasets that include patient demographics, health history, and real-time physiological data, the system can provide adaptive dosage recommendations. Continuous learning through user feedback and medical input can further refine dosage precision, enhancing both safety and efficacy in herbal treatments.

## III. EXISTING SYSTEM

The existing system for the *Mediflora Detector* should include a comprehensive plant database with detailed information on medicinal plants, including scientific names, medicinal properties, active compounds, side effects, and contraindications. A personalized health profile should be available for users to input their age, weight, health conditions, medications, and other relevant health information to ensure tailored dosage recommendations. The system should incorporate AI-driven algorithms to provide personalized dosage guidelines, adjusting based on the user's specific health needs, and include a feedback loop to refine recommendation.

A plant image recognition feature should allow users to scan plants and receive instant identification, along with dosage suggestions, research-backed evidence, and expert endorsements. The system should also include a clear disclaimer, warnings about potential interactions, and precautionary measures to ensure safety, as well as a section, user support, and educational resources on herbal medicine. The platform should provide detailed plant usage instructions, including various consumption methods, storage guidelines, and appropriate dosages for different forms of medicinal plants. Additionally, the system should have a personalized dashboard to track user progress, display historical records, and offer community features like plant sharing and peer reviews to enhance user engagement. These elements combined will help create a reliable, user-centric platform for safely and effectively integrating medicinal plants into health routines.

It prioritize the integration of accurate, real-time plant identification using image recognition technology,

allowing users to simply upload a photo of a plant and receive instant results. This feature should be supported by a robust, regularly updated plant database that includes information on the plant's geographical origin, active ingredients, and historical uses. In addition to the personalized health profile and dosage recommendations, the system should be able to track user progress over time, offering insights into the effectiveness of the recommended treatments and suggesting adjustments if necessary.

#### IV. PROPOSED SYSTEM

In the proposed system for the Mediflora Detector, key features should include a robust plant database with comprehensive information on each plant's medicinal properties, active compounds, side effects, and contraindications. The system should enable users to create a personalized health profile, including their age, weight, medical history, current medications, and allergies, allowing the platform to generate customized dosage recommendations. Leveraging AI algorithms, the system would analyze this health profile to provide precise, individualized dosage guidelines, while also incorporating a feedback loop to improve recommendations based on user experiences over time.

A plant image recognition feature should allow users to upload photos of plants, instantly identifying them and providing corresponding medicinal uses, dosage information, and scientific references to support the recommendations. Additionally, the system should include safety measures such as warnings about potential drug interactions, personalized precautions, and a clear disclaimer emphasizing that the platform is not a substitute for professional medical advice.

The proposed system should also provide access to educational resources on herbal medicine, including detailed instructions on plant usage and preparation methods, dosage forms, and storage guidelines. Users should be able to track their progress and plant usage over time through a personalized dashboard and log of their treatment history.

A community feature could also be integrated, allowing users to share their experiences, rate plant remedies, and exchange feedback with others. Ultimately, the proposed system should create a user-friendly, evidence-backed platform that empowers individuals to safely integrate medicinal plants into their healthcare routines while ensuring ongoing learning, support, and refinement of recommendations based on the surface about the world.

TABLE 1: Used attribute, and feature extraction techniques

Ref no.	Author	Year	Attribute used	Technique used
[1]	W. Chen et al.	2021	Leaf	ModelArt, EasyDL
[2]	S. Kadiwal et al.	2022	Leaf	CNN
[3]	M. Sharmila B et al.	2022	Leaf	CNN
[4]	Kumar T S, S. et al.	2021	root	Dense121, InceptionV3, VGG16, Xception, VGG19, and MobileNet.
[5]	Karna Hari Priya et al.	2020	Leaf	PNN
[25]	K. Zhang et al.	2018	Leaf	GoogleNet
[15]	Akter and Hosen et al.	2020	Leaf	Attention-based feature map
[32]	Abdollahi et al.	2022	Leaf	Morphological, Texture, and Shape Feature Extraction
[35]	Almazaydeh et al.	2022	Leaf	Resnet101 with FPN(Feature Pyramid Network
[36]	Al-Qurran et al.	2022	Leaf	InceptionV3, ResNetV2 and Inception ResNetV2.
[40]	Anubha Pearline et al.	2019	Bark	VGG16, VGG19, InceptionV3 and Inception ResNetV2
[42]	Azeez et al.	2019	Leaf	InceptionV3, ResNet, MobileNet and Inception ResNetV2
[43]	Banita Pukhrambam et al.	2022	Leaf	DenseNet
[56]	Diqi and Mulyani et al.	2021	Leaf	Susuki Algorithm
[57]	Sheelarani et al.	2022	Root	VGG16
[65]	Haryono et al.	2020	Leaf	CNN-LSTM
[67]	Huang et al.	2021	Bark	AlexNet, InceptionsV3
[68]	Indrani et al.	2020	Leaf	SqueezeNet
[69]	Islam et al.	2019	Leaf	YOLOV2
[70]	Jayanka et al.	2020	Leaf	Multi-layer perceptron (MLP), CNN

[72]	Joshi et al.	2021	Leaf	ResNet50
[77]	Little et al.	2020	Leaf	SeResNeXt-101, ResNet-50, SeNet-154
[80]	Malik et al.	2022	Leaf	EfficientNet-B2
[82]	Muneer and Fati et al.	2020	Leaf	Zernike, Hu(shape), Texture (GrayLevel Co-Occurrence Matrices (GLCM))
[85]	Oppong et al.	2022	Leaf	AlexNet, Inceptionv3, DenseNet201, GoogleNet, Resnet101, Resnet50, Mobilenetv2, VGG16 and VGG19
[86]	P and Patil et al.	2020	Leaf	MobileNetV2 and VGG16
[89]	Paulson and Ravishankar et al.	2020	Leaf	VGG16 and VGG19
[91]	Pudaruth et al.	2021	Stem	Inception-v3
[93]	Pushpanathan et al.	2022	Leaf	VGG16, VGG19, ResNet50, EfficientNet B0 and EfficientNet B7
[95]	Quoc and Hoang et al.	2020	Leaf	VGG16, VGG19, Resnet50, InceptionV3, Densenet121, Xception and MobileNetV2
[97]	Roopashri and Anitha et al.	2021	Stem	VGG16, VGG19, InceptionV3 and Xception
[99]	Sachar and Kumar et al.	2022	Leaf	MobileNetV2, InceptionV3, and ResNet50
[102]	Shahmiri et al.	2022	Leaf	VGG16, VGG19, Resnet50, InceptionV3, Densenet121, Xception, MobileNetV2
[108]	Tiwari et al.	2022	Stem	AlexNet, VGG-19, ResNet-101, and DenseNet201
[118]	E. A. Aldakheel et al.	2024	Leaf	YOLOV2
[6]	J. A. Widians et al.	2023	Bark	VGG16
[7]	Carpentier et al.	2018	Bark	BarkNet 1.0
[8]	Bahadır Elmas et al.	2021	Bark	Convolutional neural networks, AlexNet, DenseNet201, ResNet18, ResNet50, ResNet101, VGG16, and VGG19
[120]	P. Afsharpour et al.	2024	Fruit	CNN
[100]	Senevirathne et al.	2020	Leaf and Flower	FRCNN(Faster Recurrent Convolutional Neural Network)
[11]	Mostafa Mehdipour Ghazi et al.	2017	Flower, leaf, stem, fruit	GoogLeNet and VGGNet performed better than AlexNet, with VGGNet
[10]	Bindushree. S. et al.	2023	Flower, leaf	FRCNN, RCNN, VGG16, and VGG19.
[9]	W. Liu. et al.	2022	Flower, fruit	ResNet50



FIG 1: Plant classification

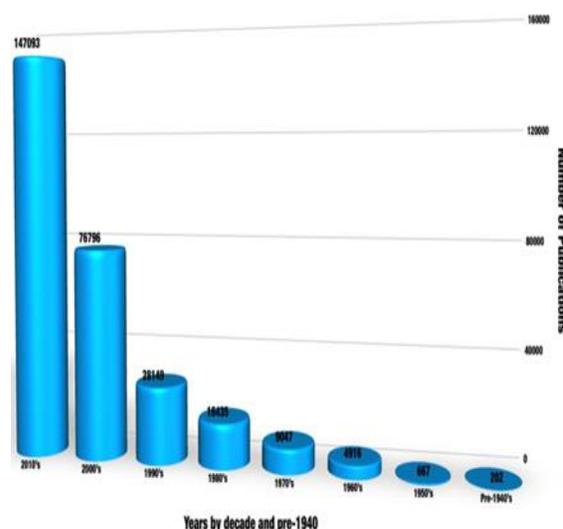


FIG 2: Graph showcasing plant reduction

A visual display of chronic disease classification could also be implemented, to show the most common types of chronic diseases users are managing with plant-based treatments in the system.

This would help users quickly identify which plants are recommended for specific conditions and how effective these plants have been in real-world applications. The system could also include a search feature where users can search for plants based on their specific chronic disease, leading to a curated list of relevant plant remedies with dosage and preparation details.

By incorporating chronic disease classification, the Mediflora Detector system would not only offer personalized, evidence-based herbal recommendations but also empower users to better understand the connection between chronic diseases and plant-based remedies, ensuring that they receive the most relevant and effective treatment options for their health conditions.

Additionally, users could search for plants based on their disease category, leading to a curated list of recommendations with dosage instructions and safety precautions.

The bar graph showcasing the decline in plant populations over time highlights a concerning trend in the destruction of medicinal plants.

Illustration about the dataset is balanced, with an equal number of images per species and attribute. This balanced distribution is essential for training a robust and unbiased model. After data is collected, the dataset was partitioned into training and testing subsets. A common 80%-20% split was employed, allocating 80% of the data (18,000 images) for model training and the remaining 20% (4,500 images) for evaluating model performance. The collected images were meticulously labelled according to their corresponding attributes (e.g., Karanj Leaf, Karanj Trunk, Neem Trunk). Each unique attribute was then assigned a numerical identifier to facilitate classification.

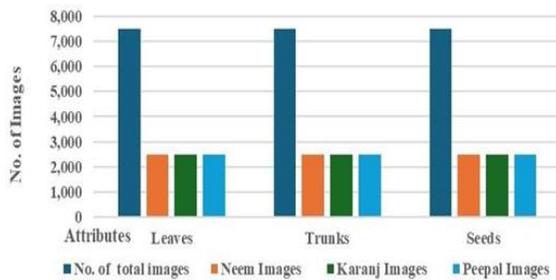


FIG 3: Plant species Representation

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