



Some Ornamental Plants for Urban Gardening in Kuwait

Aridland Agriculture and Greenery Department
Food Resources and Marine Sciences Division

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Some Ornamental Plants for Urban Gardening in Kuwait



This book is dedicated to Kuwait for its significant contribution to greenery and environmental enhancement.

Kuwait Institute for Scientific Research (KISR) for its introduction and natural greenery enhancement, and for providing technical support to the project and to promote the project in Kuwait, the Aridland region, in the form of pictorial illustrations.

In recognition of outstanding contribution of ornamental plant production, Dr. Abdulhadi S. Al-Otaibi, Director General / Research and Development, Sciences Division and Environmental Department, for providing research at KISR, I would like to thank ornamental plants research and development Department, particularly Mr. Khalil and Mr. Majed, for their contribution as well as for developing the project.

*Dr. Abdulhadi S. Al-Otaibi
Director General, KISR*

Dedication

This book is dedicated to the Ornamental Plant Production sector of Kuwait for its significant contribution in the development of greenery and environmental enhancement in the country.

Foreword

Kuwait Institute for Scientific Research (KISR) has been playing an active role since years in the introduction and naturalization of ornamental plants for use in landscape beautification and greenery enhancement. Findings of KISR's research in this area have also provided valuable technical support to both government and private sectors. To complement the ongoing activities and to promote the proper use of introduced plants for sustainable greenery development in Kuwait, the Aridland Agriculture and Greenery Department has compiled these findings in the form of pictorial illustration.

In recognition of outstanding efforts and valuable contributions in pursuing KISR goals in ornamental plant production, I wish to extend my gratitude to Dr. Nader Al-Awadhi, Deputy Director General / Research Affairs, Dr. Samira Omar, Director, Food Resources and Marine Sciences Division and Dr. Afaf Al-Nasser, Manager, Aridland Agriculture and Greenery Department, for providing proper direction, encouragement and support to ornamental plant research at KISR. I would also like to express my sincere appreciation to the ornamental plants research team in Aridland Agriculture and Greenery Department, particularly, Dr. N. R. Bhat, Dr. Habibah S. Al-Menaie, Ms. Majda Khalil and Mr. Majed Al-Zalzalali for their valuable contributions in research as well as for developing this colorful illustration guide.

*Dr. Abdulhadi S. Al-Otaibi
Director General, KISR*



INTRODUCTION

For over two decades, the Kuwait Institute for Scientific Research (KISR) has been conducting research on testing suitability of new ornamental plants and optimizing their visual greenery impacts under Kuwait's growing conditions. This research has led to naturalization of several exotic ornamental plants for their use in landscape beautification and environment enhancement. Through these efforts, KISR has accumulated a wealth of knowledge on these plants. Based on these findings, the Aridland Agriculture and Greenery Department has developed an illustrative guide "Some ornamental plants for urban gardening in Kuwait".

This guide is a pictorial illustration of plants, which are currently growing at the waterfront site of KISR. This book contains colorful illustrations of growth pattern, shape and visual greenery impacts of trees, shrubs, ground covers and water plants under coastal climate of Kuwait. It also presents valuable technical information on the promising plants. Therefore, it will serve as a field guide that can be used by general public, nurserymen, landscape architects and landscape maintenance companies to learn more about ornamental plants and their proper use in Kuwait.

TREES







(T1) *Acacia podalyriifolia*

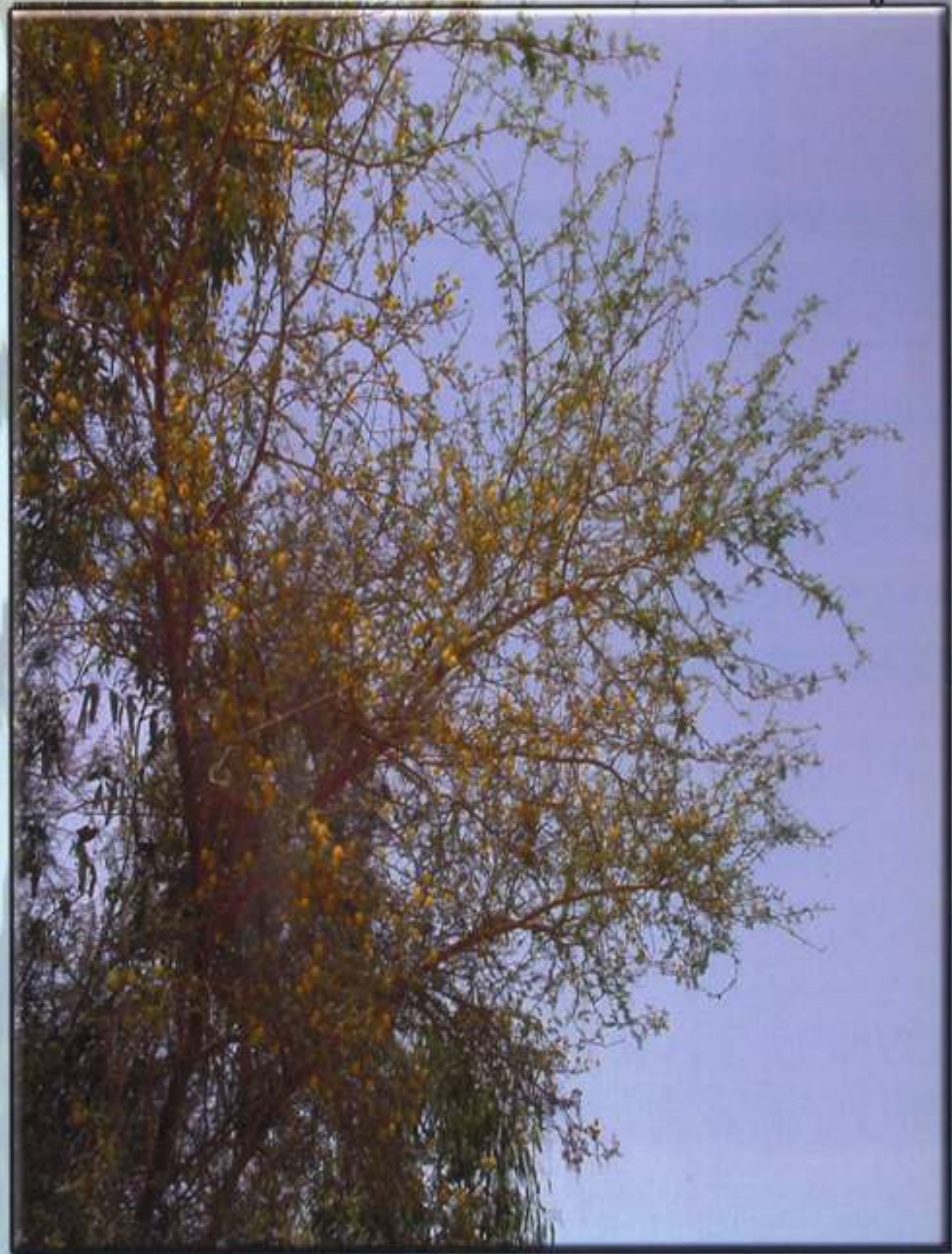


(T2) *Plumeria alba*



(T3) *Moringa perigrina*

Trees are plants with one main stem or trunk and grow to a height greater than three meters. These plants can endure long periods of environmental stress. These specimen trees are tolerant to harsh environmental conditions and require minimum maintenance. Hence, they serve as a valuable plant resource for the landscape and greenery projects in Kuwait. The trees in this booklet include *Acacia acuminata*, *Eucalyptus camaldulensis*, *Parkinsonia aculeata*, *Acacia nilotica*, *Moringa perigrina*, *Prosopis spicigera*, *Acacia podalyriifolia*, *Peltophorum ferruginum* and *Plumeria alba*.



(T4) *Acacia nilotica*



(T7) *Parkinsonia aculeata*



(T5) *Acacia acuminata*



(T6) *Eucalyptus camaldulensis*





Overview of some trees at
Urban Demonstration Gardens



SHRUBS



(S8) *Calliandra eriophylla*



(S9) *Acacia bivenosa*

Shrubs are woody, multi-branched low-growing plants. They range from one to three meters in height and are planted singly or in groups near the buildings and in the parks. They serve as foundation plants that complement architectural features in the landscape design.

Low-growing shrubs can be arranged to divide the space at the ground level, a physical separation rather than a visual one. Larger shrubs growing above the eye level will define space and can be used to

camouflage undesired features in the garden. Shrubs can be grown in their natural form or can be clipped or pruned to give various shapes (topiary). Once shrubs are clipped uniformly, hedges are formed. They also absorb heat, moisture, and dust, and help in erosion control. The shrubs displayed in this booklet include:

Vitex negundo, *Caesalpinia mexicana*, *Malvaviscus arboreus*, *Hibiscus rosasinensis*, *Calliandra eriophylla*, *Lantana camara*, *Yucca aloifolia*, *Acacia bivenosa* and *Tecoma stans*.



(S10)



(S10)

Different varieties of

Hibiscus rosasinensis



(S10)



(S11) *Vitex negundo*



(S12) *Caesalpinnia mexicana*





White-flowered
variety (Nivea) of
Lantana camara

(S13)



GROUND COVERS





Ground covers are low growing, spreading plants. They vary in form, leaf size, color and texture. Ground covers provide a change in foliage texture or add color to landscapes. They generally have low maintenance requirements and will grow best when they do not compete with weeds and grasses for water and nutrients. They reduce soil erosion, cool bare surfaces by providing shade to the ground surface. Ground covers are used under and around trees and shrubs, between stones in rock gardens, in narrow planting areas, as border plants around lawn, and for color pattern and foliage contrasts. Some ground covers are used in place of lawns to reduce maintenance and water usage. The ground covers included in this booklet are: *Schinus molle*, *Achillea millefolium*, *Ceanothus cuneatus*, *Pennisetum alba*, *Gazania splendens*, *Portulaca oleracea*, *Hymenocallis macrostephan*, *Amaryllis belladonna*, *Dimorphotheca aurantiaca*, *Agave americana*, *Zoysia japonica*, *Euphorbia pulcherima* and *Acalypha hispida*.



(GC14) *Schinus molle*



(GC15) *Ceanothus cuneatus*



(GC16) *Hymenocallis macrostephan*



(GC17) *Pennisetum alba*



(GC18) *Achillea millefolium*



(GC19) *Amaryllis belladonna*



(GC20) *Portulaca oleracea*



(GC21) *Acalypha hispida*



(GC22) *Euphorbia pulcherima*



(GC23) *Agave americana*



(GC24) *Gazania splendens*



(GC25) *Dimorphanthia aurantiaca*





WATER PLANTS

Plants that grow in standing water are called water plants. They can be either floating or submerged. Since 1997, four cultivars (red, yellow, orange and pink) of *Nymphaea odorata* and *Nymphaea caerulea* and one type each of *Pistia stratiotes*, *Cyperus rotundus*, and *Typha latifolia* were tested for their adaptability to Kuwait's climatic conditions. Two *Nymphaea odorata*, *Pistia stratiotes*, *Cyperus rotundus* and *Typha latifolia* were found to perform best even under harsh climatic conditions. Pictures in this booklet include: *Nymphaea odorata* (white and pink), *Nymphaea caerulea* (purple), *Pistia stratiotes* and *Typha latifolia*.



37



(W26)

White-flowered variety (Alba) of *Nymphaea odorata*





Leaf and flower color in
Nymphaea caerulea
during winter (left)
and summer (right)





(W27) *Typha latifolia*



(W28) *Pistia stratiotes*

INDEX TREES



T1: *Acacia podalyriifolia* (Source, Australia): A hardy, drought-tolerant tree with greyish green foliage. It is specifically useful in erosion control and afforestation projects. In addition, it can be used in streetscapes, gardens and as windbreaks.



T2: *Plumeria alba* (Source, India): A slow-growing plant, ideal in homes and neighborhood parks. It exhibits an umbrella or vase-like shape. It grows to a height of 8.5 m. It produces intensely fragrant white flower bundles. It can be used in containers, median-strip plantings, buffer strips around parking and along sidewalks.



T3: *Moringa perigrina* (Source, India): A medium-sized tree that can withstand coastal conditions. This tree is fast-growing and hardy. It is suitable in various landscape designs.



T4: *Acacia nilotica* (Source, Australia): A hardy, drought tolerant tree that can thrive well in long periods of drought. This tree is naturalized to Kuwait's climate and is suitable for afforestation and landscape projects.



T5: *Acacia acuminata* (Source, India): Almost all acacia plants survive well in the arid areas. They perform well under drought conditions, and bloom in spring. They can be used in all landscape designs and afforestation projects.



T6: *Eucalyptus camaldulensis* (Source, Australia): A naturalized tree that has been introduced to Kuwait since about three decades. This fast growing tree is suitable in afforestation projects, streetscapes, in parks for shade and as a specimen tree and windbreak.



T7: *Parkinsonia aculeata* (Source, India): A large tree that blooms with yellow flowers in Spring. This tree has been naturalized in Kuwait. It can be used in greenery projects for shade, as a specimen tree, along the streets and as windbreaks. It requires minimal maintenance once established.



S8: *Calliandra eriophylla* (Source, Australia): A recently introduced medium-sized shrub. This shrub blooms in red, feather-like flowers in Spring. It needs protection from direct sunlight and performs better when planted in combination with larger plants for protection.



S9: *Acacia bivenosa* (Source, Australia): A large, spreading evergreen shrub that provides a perfect environment for various fauna to live underneath. The shrub is covered with yellow flowers in Spring

SHRUBS



S10: *Hibiscus rosasinensis* (Source, India): An evergreen shrub with spreading nature and variety of flower colors and forms. It is ideal for planting in protected gardens. It can also be used as containerized plants, in coastal conditions as a hedge or topiary.



S11: *Vitex negundo* (Source, India): This shrub was introduced to Kuwait since 1984. It has a spreading nature and thrives in coastal and urban conditions. It produces small, lavender flowers all the year long. It can also be used as hedges or in containers for home gardens.



S12: *Caesalpinnia mexicana* (Source, USA): A drought-tolerant, fast growing shrub that blooms all the year long in attractive yellow flowers. It has been recently introduced to Kuwait and can be used as a hedge or in mass plantings.



S13: *Lantana camara* Var. *Nivea* (Source, USA): A trailing, hardy evergreen shrub that produces several white flowers. It can be used as a hedge, in group planting, as a ground cover, for topiary and in containers.

GROUND COVERS



GC14: *Schinus molle* (Source, Australia): This plant has been introduced from Australia and is performing particularly well in the Urban Demonstration Gardens. It is an evergreen, medium-sized shrub with thick-leathery leaves. It produces white flowers that "glow" in the dark.



GC15: *Ceanothus cuneatus* (Source, Australia): It is also known as "wild lilac". It is prostrate when young and then gradually builds up into a mound-shaped bush that produces generous quantities of purple colored flowers. It can be used in front of a shrub border or in rockery



GC16: *Hymenocallis macrostephan* (Source, India): A bulbous plant that is perfectly suited to shady areas in home garden and in small, well-attended gardens. It produces a very attractive white-colored flower that has the shape of an umbrella. It is suitable for mass planting or as a specimen plant.



GC17: *Pennisetum alba* (Source, USA): Also known as "Fountain Grass". It is a very attractive perennial with a mounding habit that has been recently introduced to Kuwait. This plant exhibits a feathery, cool shape. It is specifically suitable for rock gardens, as a specimen plant or in mass planting.



GC18: *Achillea millefolium* (Source, India): It is an annual that produces clusters of white flowers and can be used in seed mixes.



GC19: *Amaryllis belladonna* (Source, India): A bulbous flowering plant that produces beautiful white flowers. Its sensitive nature recommends planting in home gardens and in well attended gardens. It is suitable for mass planting or as a specimen plant or along the garden pathway.



GC20: *Portulaca oleracea* (Source, India): A perennial, evergreen groundcover with a spreading habit. It produces a variety of flower colors throughout the year. It is suitable as a bedding plant.



GC21: *Acalypha hispida* (Source, India): An evergreen bushy shrub with very attractive colored leaves and flowers. It is well suited for home gardens. This striking ornamental can be planted as a free standing specimen shrub or in a mixed border or hedge.



GC22: *Euphorbia pulcherrima* (Source, USA): A groundcover that blooms in Winter with small, tinted orange flowers. It is suitable for home gardens and prefers partial shade.



GC23: *Agave americana* (Source, USA): A succulent with a rosette shape with fast growing habit. It is a typical drought-tolerant desert plant. It produces white flowers in Spring. It is well-suited to rock gardens, xeriscapes and as a specimen plant.



GC24: *Gazania splendens* (Source, Local): An evergreen perennial that produces different flower colors and patterns. It is suitable as a bedding plant in small areas. Minimal maintenance is required as the plant does not exhibit a spreading habit.



GC25: *Dimorphotheca aurantiaca* (Source, Local): It is spreading plant with flowers that open under relatively low light conditions. Sunshine is an early well-branched series with large golden flower.

WATER PLANTS



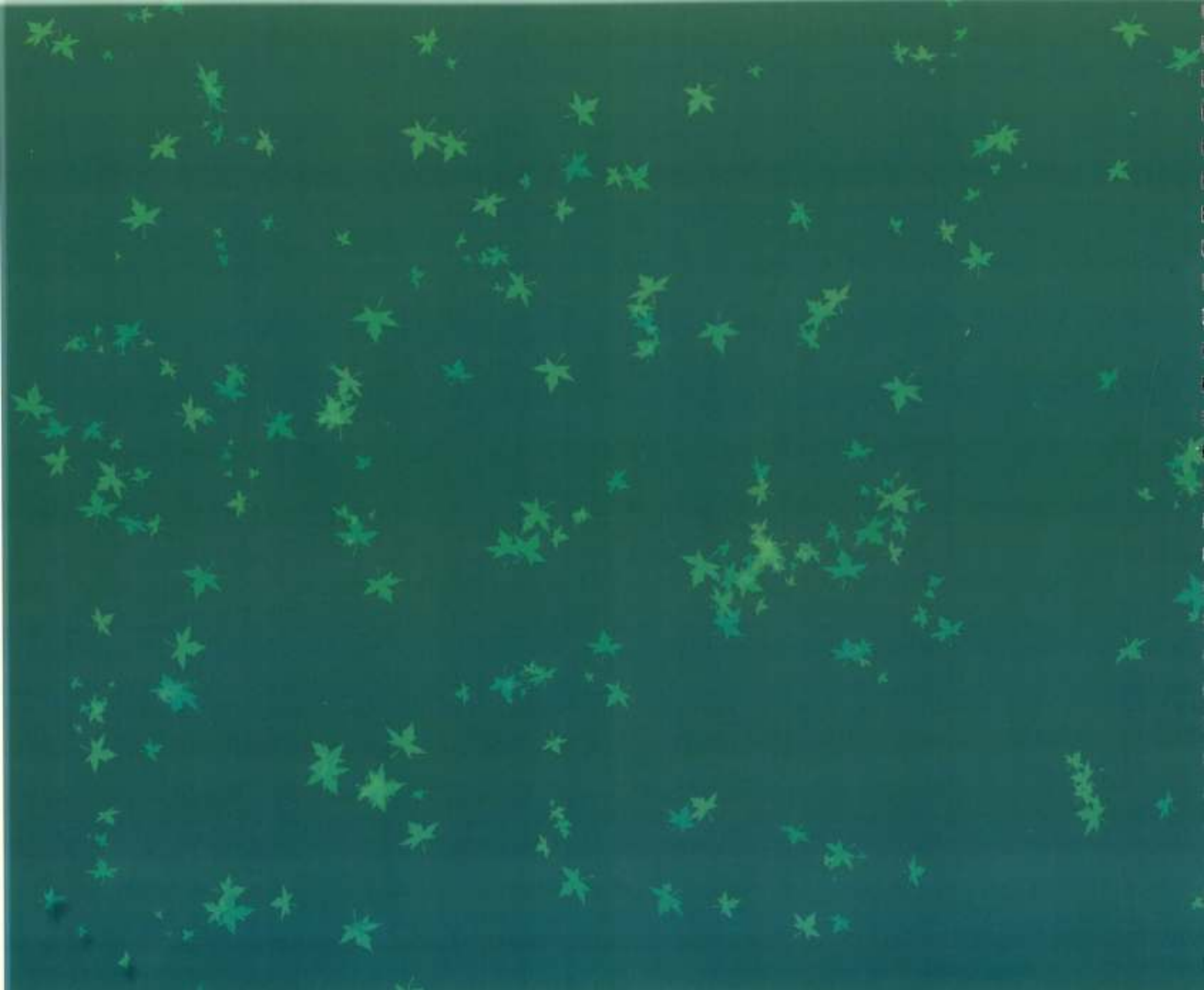
W26: *Nymphaea odorata* (Source, India): Also called "water lilies", they serve as a focal point in any water garden. The large leaves offer shelter for fish and reduce the spread of algae in the water. *Nymphaea* prefers sunny location and still water. They produce various flower colors.



W27: *Typha latifolia* (Source, India): A perennial water plant with grass-like leaves. Cylindrical seed heads are produced on the leaf tips.



W28: *Pistia stratiotes* (Source, Australia): Also called as "water lettuce", it is a perennial floating water plant for pools and aquariums. It has hairy, soft foliage in an arrangement similar to lettuce.



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