1-The ecology of Al-Samaliah Island, UAE

Zahran, MA (Zahran, MA) [1]; Al-Ansari, FM (Al-Ansari, FM) [2]

[1] Univ Mansoura, Fac Sci, Dept Bot, Mansoura, Egypt

[2] UAE Univ, Dept Biol, Fac Sci, Al Ain, U Arab Emirates

Abstract

Al-Samaliah Island is one of the inshore islands of U.A.E. located at about 12 km north-east of Abu Dhabi in the Arabian Gulf. It has a flat undulating surface with neither sand dunes nor rocky hills. Its sandy soil is generally salt-affected with variable percentages of salts. The vegetation of Al-Samaliah Island is essentially halophytic and may be categorized as: seagrasses, mangal and littoral saltmarsh types. The main species include: Cymodocea ciliata, Halophila spp. and Halodula univervis (seagrasses), some algae, Avicennia marina (mangrove), Arthrocnemum macrostachyum, Seidlitzia rosmarinus, and Suaeda vermiculata (salt marsh). Other halophytes commonly present are: Anabasis setifera, Halocnemum strobilaeum, Halopeplis perfoliata, Salsola imbricata and Zygophyllum qatarense in addition to two annuals: Schangenia aegyptiaca and Zygophyllum simplex. Phoenix dactylifera is cultivated in local areas covered with sandy sheets. Between the date palm trees there is a thin growth of Cyperus conglomeratus. Some plant species have been analysed chemically to determine their main constituents. The relationships between the environmental factors and the plant life of the islands are discussed.

Keywords: arid lands; islands; mangroves; halophytes; psammophytes

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References

1. AI-Saleh, F. S., Ali, A. & Mirza, M. 1993 Chemical constituents ofsome medicinal plants growing in Bahrain. *Fitoterapia* L XIV, 251-256.

2. Anonymous 1996 *UAE Climate.* Ministry of Communications Cultural Foundation Publications, Abu Dhabi, UAE, pp. 217-223 (in Arabic).

3. Batanouny, K. H. 1981 *Ecology and Flora of Qatar.* Alden Press Ltd, Oxford and the Centre for Sci. and App. Research Univ. of Qatar, Doha, 245 pp.

4. Chapman, V. J. 1974 *Salt Marshes and Salt Deserts of the World.* 2nd edn. Cramers Lehre. 392 pp.

5. Cintron, G. & Goenaga, C. 1979 Observation on the development of mangrove areas on arid coasts. *The Mangrove Ecosystem:Scientific Aspects and Human Impacts. UNESCO Report in Marine Sciences: 29-30.*

6. Farnsworth, N. R. 1966 Biological and phytochemical screening of plants. *Journal of Pharmacological Science* 55, 225-230.

7. Hemming, C. F. 1961 The ecology of the coastal area of Northern Eritrea. *Journal of Ecology* 49, 55-78.

8. Jackson, M. I. 1962 *Soil Chemical Analysis.* Constable and Co. Ltd, London.

9. Kassas, M. A. 1957 On the ecology of the Red Sea coastal land. *Journal of Ecology* 45, 187-203.

10. Kassas, M. & Zahran, M. A. 1965 Studies on the Ecology of the Red Sea Coastal Land II. The District from EI-Galala EI-Qibliya to Hurghada. *Bulletin Society Geographie d'Egypte* 38, 155-193.

11. Kassas, M. & Zahran, M. A. 1967 On the ecology of the Red Sea littoral salt marsh, Egypt. *Ecological Monographs* 37, 297-315.

12. Mandaville, J. P. 1990 *Flora of the Eastern Saudi Arabia.* Kegan Paul International, London, 482 pp.

13. MEP A. 1992 *Coastal and Marine Management Series, Saudi Arabia: An Analysis of Coastal and Marine Habitats of the Red Sea.* Report No.1, 250 pages.

14. Mossa, J. S., Al-Yahya, M. A. & Al-Meshal, I. A. 1987 *Medicinal Plants of Saudi Arabia.* King Saud University Libraries, Riyadh,Saudi Arabia, 340 pp.

15. Parsons, T. R. 1992 *Biological Coastal Communities: Productivity and Impacts on Coastal Systems Studies and Sustainable Development UNESCO, 27-37.*

16. Purser, B. H. & Seibold, E. 1973 The principal environment factors influencing Holocene sedimentation and diagenesis in the Persian
17. Gulf. In *The Persian Gulf* (Purser, B. H., ed.). Springer-Verlag, New York, pp. 1-10.

18. Rizk, A. M. 1982 Constituents of plants growing in Qatar. 1. A chemical survey of sixty plants. *Fitoterapia* 52, 35-44.

19. Rizk, A. M. 1986 *The Phytochemistry of the Flora of Qatar.* Scientific and Applied Research Centre, University of Qatar, Doha, Qatar,582 pp.

20. Tiickhlam, V. 1974 *Students' Flora of Egypt.* 2nd edn. Cairo University and Cooperative Printing Co., Beirut, 888 pp.

21. Wall, M. E., Carvin, J. W., Williaman, J. J., Jones, Q. & Schubert, B. G. 1960 Survey of plants for steroidal sapogenesis and constituents. *Journal of*

Pharmacological Science 50, 1001-1005.

22. Western, R. A. 1979 The Mangroves. *Emirates Natural History Group Bulletin* 9, 19-21.

23. Western, R. A. 1982 The natural vegetation of Abu Dhabi Island. *Emirates Natural History Group Bulletin* 17, 18-24.

24. Western, R. A. *1983a* The vegetation of the Arabian Gulf Coast of the UAE. *Emirates Natural Histcry Group Bulletin* 21,2-11.Western, R. A. *1983b* The vegetation of offshore islands in the Gulf. *Emirates Natural History Group Bulletin* 20, 16-23.

25. Western, R. A. *1983c* Grasses of Abu Dhabi Island. *Emirates Natural History Group Bulletin* 19, 21-28.

26. Western, R. A. 1987 The coastal vegetation of Fujairah, UAE. *Emirates Natural History Group Bulletin* 31, 10-21.

27. Western, R. A. 1989 *The Flora of the UAE: An Introduction.* UAE University Publication, 188 pp.

28. Zahran M. A. 1977 Africa. A. Wet formations of the African Red Sea coast. In *Ecosystems of the World. I. Wet Coastal Ecosystems*(Chapman, V. G. ed.). Elsevier, Amsterdam, pp. 215-231.

29. Zahran, M. A., Younes, H. A. & Hajarah, H. H. 1983 On the ecology of mangal vegetation of the Saudi Arabian Red Sea Coast. *Journal of the University of Kuwait of Science* 10, 87-89.

2-Introduction to the ecology of the littoral halophytes of Yemen

Zahran, MA (Zahran, MA) [1]; AlKaf, HF (AlKaf, HF)

[1] Univ Mansoura, Fac Sci, Dept Bot, Mansoura, Egypt

Abstract

The coastal belts of Yemen (about 1950 Km) extend along the Red Sea coast (about 550 Km) and the Gulf of Aden Coast (about 1445 Km). In both coastal belts the climate is arid, hot and dry. Soil is of the aridosols type: sandy, saline and contains considerable amounts of calcium carbonates. The littoral halophytes of Yemen are grouped under six types: seagrasses, mangroves, salt marshes, sand dunes, reed swamps and palm groves. The common species of these types include: Cymodocea spp., Halophila spp., Halodule uninervis,Avicennia marina, Typha domingensis, Phargmites australis, Cyperus spp., Arthocnemum glacum, Halopeplis perfoliata, Suaeda spp., Salsola spp., Tamarix iv spp., Zygophylum album, Halopyrum mucronatum, Hyphaene thebaica and Phoenix dactylifera.

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References

1. Title: Plant communities along the road from Aden to Sheikh Salem (Abyan), Yemen
Author(s): Al-Gifri, A. N.; Hussein, M. A.
Source: Feddes Repertorium Volume: 104 Issue: 3-4 Pages: 267-270 Published: 1993

2. Title: Salt-tolerant plants in Aden (Yemen)
Author(s): Al-Gifri, Abdulnasser
Source: Fragmenta Floristica et Geobotanica Volume: 36 Issue: 2 Pages: 289-292

Published: 1991

3. Title: [not available]
Author(s): ALGIFRI AN
Source: THESIS KATOWICE Published: 1992

4. Title: [not available]
Author(s): ALHUBAISHI A
Source: B FS ASSIUT U EGYPT Volume: 20 Pages: 1 Published: 1990

5. Title: [not available]
Author(s): ALHUBAISHI A
Source: INTRO VEGETATION YEM Published: 1994

6. Title: [not available]
Author(s): BLATTER E
Source: REC BOT SURV INDIA Volume: 7 Pages: 418 Published: 1914

7. Title: [not available]
Author(s): BOULOS L
Source: BOTANIQUES GENEVE Volume: 43 Pages: 548 Published: 1988

8. Title: [not available]
Author(s): DEFLERS A
Source: B SOC BOT FRANCE Volume: 43 Pages: 321 Published: 1986

9. Title: [not available]
Author(s): DEIL U
Source: MITT DTSCH JEMENITIS Volume: 14 Pages: 12 Published: 1983

10. Title: [not available]
Author(s): DRAZ O
Source: B I DESERT EGYPT Volume: 6 Pages: 69 Published: 1956

11. Title: [not available]
Author(s): DUBAIE AS
Source: FEDD REPERT Volume: 104 Pages: 256 Published: 1993

12. Title: [not available]
Author(s): EDWARDS A
Source: RED SEA KEY ENV Published: 1987

13. Title: [not available]
Author(s): ELANBAAWY MI
Source: GEOLOGY YEMEN REPUBL Published: 1985

14. Title: [not available]
Author(s): Forsskal, P.
Source: Flora Aegyptiaco-Arabica Published: 1775

Publisher: Moller, Copenhagen

15. Title: [not available]
Author(s): FRESENIUS JB
Source: GULF ADEN J BOT PARI Volume: 1 Pages: 118 Published: 1934

16. Title: [not available]
Author(s): GABALI AS
Source: FEDDES REPORTORIUM Volume: 101 Pages: 373 Published: 1990

17. Title: [not available]
Author(s): GABALI AS
Source: FRAGM FLOR GEOBOT Volume: 36 Pages: 127 Published: 1991

18. Title: [not available]
Author(s): GEUKENS FP
Source: I GEOL LOURANS MEM Volume: 12 Pages: 122 Published: 1966

19. Title: [not available]

Author(s): HEPPER FN
Source: CAIRO U HERB GIZA NO Volume: 7 Pages: 307 Published: 1977

20. Title: Were there forests in the Yemen?
Author(s): Hepper, F. N.; Wood, J. R. I.
Source: Proceedings of the Seminar for Arabian Studies Volume: 9 Pages: 65-71 Published: 1979

21. Title: [not available]
Author(s): Jackson, M. L.
Source: Soil Chemical Analysis Published: 1962
Publisher: Prentice Hall of India, New Delhi

22. Title: ON ECOLOGY OF RED SEA LITTORAL SALT MARSH EGYPT
Author(s): KASSAS, M; ZAHRAN, MA
Source: ECOLOGICAL MONOGRAPHS Volume: 37 Issue: 4 Pages: 297-& DOI: 10.2307/1942326 Published: 1967

23. Title: [not available]
Author(s): KERFOOT D
Source: VEGETATION E ADEN PR Volume: 11 Pages: 3 Published: 1961

24. Title: [not available]
Author(s): LAVRANOS JJ
Source: CACTUS SUCCULENT J Volume: 43 Pages: 60 Published: 1975

25. Title: [not available]
Author(s): MIGAHID AM
Source: 2 RIY U PUBL Published: 1978

26. Title: [not available]
Author(s): NEWTON LE
Source: NATL CACT SUCC J Volume: 35 Pages: 83 Published: 1980

27. Title: [not available]
Author(s): PARSONS TR
Source: BIOL COASTAL COMMUNI Published: 1992

28. Title: [not available]
Author(s): Scholte, P.; Khuleidi, A. W.; Kessler, J. J.
Source: The vegetation of the Republic of Yemen western part Published: 1991
Publisher: Environmental Protection Council, Agriculture Research Authority, Range and Livestock Improvement Project, Dhamar

29. Title: [not available]
Author(s): SCHWARTZE O
Source: FLORA TROPISCHEN ARA Volume: 10 Pages: 1 Published: 1936

30. Title: [not available]
Author(s): SCHWEINFURTH G
Source: ARABISHE PFLANZENNAM Published: 1912

31. Title: [not available]
Author(s): SCHWEINFURTH G
Source: B HERB BOISSIER Volume: 7 Pages: 267 Published: 1899

32. Title: [not available]
Author(s): SCHWEINFURTH G
Source: B HERB BOISSIER Volume: 4 Pages: 115 Published: 1896

33. Title: [not available]
Author(s): SCHWEINFURTH G
Source: B HERB BOISSIER Volume: 2 Pages: 1 Published: 1894

34. Title: [not available]
Author(s): Tackholm, V.
Source: Students' Flora of Egypt Published: 1974

Publisher: Cairo University Press, Cairo

35. Title: [not available]
Author(s): THULIN M
Source: REPORT FLORA MASILA Published: 1992

36. Title: [not available]
Author(s): *IUCN
Source: MAR CONS SURV YEM AR Published: 1986

37. Title: [not available]
Author(s): *IUCN PERSGA
Source: PREL COAST ZON MAN R Published: 1987

38. Title: [not available]
Author(s): *MEBA
Source: COAST MAR MAN SER Pages: 250 Published: 1992

39. Title: [not available]
Source: CLIMATIC NORMALS NO Published: 1993

3-ANALYSIS OF HABITATS AND ANATOMY OF JUNCUS-SUBULATUS FORSSK, DELTAIC MEDITERRANEAN COAST, EGYPT

ZAHRAN, MA (ZAHRAN, MA) [1]; SOLIMAN, MI (SOLIMAN, MI); SERAG, MS (SERAG, MS)

[1] Univ Mansoura, Fac Sci, Dept Bot, Mansoura, Egypt

Abstract

Juncus subulatus is a salt tolerant rush growing in the coastal and inland salt affected wetlands of Egypt. Its dense growth usually occurs in the wetlands associated with the northern deltaic lakes of Egypt. The floristic composition and vegetative yield of Juncus subulatus community were studied in eight sites of the deltaic Mediterranean coastal belt of Egypt. The associate species are mainly halophytes and helophytes. The means of moisture content, fresh weight and dry weight of Juncus subulatus culms were: 70%, 351 gm/m2 and 102 gm/m2 respectively. The anatomical studies show that these culms contain highly developed chlorenchyma tissues and the sclerenchyma are absent except in the vascular bundles. Sclereides and calcium oxalate were not detected. This may explain that J. subulatus. unlike Juncus rigidus and Juncus acutus. is not a fibre producing rush but it may be proposed as a fodder halophyte for domestic animals.

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4-ON THE ECOLOGY OF JUNCUS-ACUTUS AND J-RIGIDUS AS FIBER PRODUCING HALOPHYTES IN ARID REGIONS

ZAHRAN, MA (ZAHRAN, MA); ELDEMERDASH, MA (ELDEMERDASH, MA); MASHALY, IA (MASHALY, IA)

[1] Univ Mansoura, Fac Sci, Dept Bot, Mansoura, Egypt

Keywords: FIBER PLANT; HALYPHYTES; JUNCUS SPEC; EGYPT

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5-MODERN POLLEN RAIN STUDIES OF THE NILE DELTA, EGYPT

S. M. A Y Y A D[1], P. D. MOORE[2] AND M. A. ZAHRAN[1]
(1)Department of Botany, Faculty of Science, University of Mansoura, Egypt, and
(2) Division of Biosphere Sciences, King's College, University of London, Campden Hill Road, London W8 7AH, UK

E-mail Address:

Abstract

Modern pollen studies are proving increasingly valuable in the interpretation of fossil pollen assemblages, but relatively little work has been conducted in the arid and semi-arid parts of the world. In this study, surface samples from a range of vegetation types along the Mediterranean coastal lands of the north of Egypt were collected. The sites were arranged along three representative sea-landward transects at different points along the Nile Delta coast. Samples have been analyzed for their pollen content and the resulting data ordinated using multivariate techniques (detrended correspondence analysis - DECORANA). The groupings that emerge from this analysis are generally closely related to the vegetation from which they were derived, although it proved impossible to separate saline barren areas from salt marsh sites on the basis of their pollen rain. In order to test the results against fossil material, two short profiles of alluvial sediment were excavated from two of the study areas, and the profiles analyzed for pollen. Ordination of the data from these soil sections provided information on the past history of the sites, mainly related to local successional processes in these maritime environments. The results illustrate the potential of surface studies as a basis for environmental reconstruction in the coastal region of the Nile delta.

Keywords: Modern pollen rain, alluvial sediments, maritime habitats, Egypt, succession.

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References

1. Birks, H. J. B. & Gordon, A. D. (1985). Numerical Methods in Quaternary Pollen Analysis. Academic Press. London .
2. Graham, R. W. & Grimm, E. (1990). Effects of global climate change on the patterns of terrestrial biological communities. Trends in Ecology and Evolution **5**, 289–292.
3. Lamb, H. F., Eicher, U. & Switsur, V. R. (1989). An 18000 year record of vegetation, lake-level and climatic change from Tigalmamine, Middle Atlas, Morocco. Journal of Biogeography **16**, 65–74.
4. Lezine, A. M. (1989). Late Quaternary vegetation and climate of the Sahel. Quaternary Research **32**, 317–334.
5. Moore, P. D. (1990). Vegetation's place in history. Nature **347**, 710–711.
6. Moore, P. D. & Stevenson, A. C. (1982). Pollen studies in dry environments. In: Desertification and Development: Dryland Ecology in Social Perspective (Ed. by B.Spooner & H. S.Mann), pp. 249–267. Academic Press, London .
7. Moore, P. D. & Webb, J. A. (1978). An Illustrated Guide to Pollen Analysis. Hodder & Stoughton, London .
8. Moore, P. D., Webb, J. A. & Collinson, M. E. (1991) Pollen Analysis. 2nd edn. Blackwell Scientific Publications, Oxford .
9. Ritchie, J. C. Eyles, C. H. & Haynes, C. V. (1985). Sediment and pollen evidence for an early to mid-Holocene humid period in the eastern Sahara. Nature **314**, 352–355.
10. Schoenwetter, J. & Doerschlag, L. (1971). Surficial pollen records from Central Arizona. 1. Sonoran desert scrub. Journal of the Arizona Academy of Science **6**, 216–221.
11. Stevenson, A. C. (1981). Pollen studies in semi-arid environments: N.E. Iran and S.W. Spain. Ph.D. Thesis, University of London.
12. Stevenson, A. C. & Moore, P. D. (1985) Surface pollen and short core studies in Mediterranean heathland in southern Spain. Ecologia Mediterranea **11**, 129–133.
13. Täckholm, V. (1974). Student's Flora of Egypt. University of Cairo, Cairo .

14. Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M & Webb, D. A. (19641980). Flora Europaea. Cambridge University Press, Cambridge .
15. Van Zeist, W., Timmers, R. W. & Bottema, S. (1968). Studies of modern and Holocene pollen precipitation in S.E. Turkey. Palaeohistoria **14**, 19–39.
16. Wright, H. E. Jr (1967). The use of surface samples in Quaternary pollen research. Reviews of Palaeobotany and Palynology **2**, 321–330.

6-A note on the vegetation on islands in Lake Manzala, Egypt

Zahran, M. E. Abu Ziada, M. A. E1-Demerdash & A. A. Khedr

Department of Botany, Faculty of Science, Mansoura University, Mansoura, Egypt

E-mail Address:

Abstract

Lake Manzala is one of the Deltaic Mediterranean lakes in Egypt. It comprises over 1000 islands of various sizes, the vegetation of which is halophytic. Seven community types are described, dominated by: *Phragmites australis, Juncus acutus, J. rigidus, Arthrocnemum macrostachyum, Atriplex portulacoides, Halocnemum strobilaceum* and *Zygophyllum aegyptium.* Each of these communities has been analysed and its habitat described and discussed.

Keywords: Halophyte, Soil property, Water level, Zonation

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References

1. Anon. 1960. Climatological normals for Egypt. Meteorological Dept. Ministry of Military Production.

2. Ayyad, M. A. & Ammar, M. Y. 1973. Relationship between local physiographic variations and the distribution of common Mediterranean desert species. Vegetatio 27: 163-176.

3. Ayyad, M.A. & Ammar, M.Y. 1974. Vegetation and environment of the western Mediterranean coastal land of Egypt. If. The Habitat of inland ridges. J. Ecol. 62: 439-457.

4. Ayyad, M.A. & E1-Ghareeb, R. E. M. 1982. Salt marsh vegetation of the western Mediterranean desert of Egypt.Vegetatio 49: 3-19.

5. Cottam, G. & Curtis, J.T. 1956. The use of distance measures in phytosociological sampling. Ecology 37:460 -451 :

6. Hanson, H. C. & Churchill, E. D. 1965. The plant community. Reinhold Publ. Corporation, New York.

7. Jackson, M. E. 1962. Soil chemical analysis. Constable & Co. Ltd, London.

8. Kershaw, K.A. 1973. Quantitative and dynamic plant ecology. Edward Arnold Pub. Ltd. London.

9. Montasir, A. H. 1937. Ecology of Lake Manzala, Egyptian Univ. Bull. Soc. Sci. 12: 1-50.

10. Richards, L. A. 1954. Diagnosis and improvement of saline and alkali soils. U.S. Dept. Agric., Handbook 60.