anhydride and pyridine, RA-II yielded hinokiflavone pentaacetate (IIb), which was characterized by ^{1}H NMR (400 MHz, $CDCl_3$, δ scale): 2.12 (s, 3H, OAc-7″), 2.24 (s, 3H, OAc-4‴), 2.35 (s, 6H, OAc-7, 5), 2.45 (s, 3H, OAc-5″), 6.60, 6.66 (1H each, s, H-3, 3″), 6.86 (d, 1H, J=2.5 Hz, H-6), 7.05 (d, 2H, J=9 Hz, H-3′, 5′), 7.34 (d, 2H, J=9Hz, H-3‴, 5‴), 7.35 (d, 1H, J=2.5 Hz, H-8), 7.47 (s, 1H, H-8″), 7.83 (d, 2H, J=9Hz, H-2′, 6′) and 7.91 (d, 2H, J=9Hz, H-2‴, 6‴). Therefore, RA-II was characterized as hinokiflavone (IIa)[19].

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DEPENDENCE OF CRYSTALLINITY OF NICKEL ON ELECTRODEPOSITION CONDITIONS

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THE report of Pol Duwez *et al*[1,2] on non-crystalline solids has led to new academic and technological research activity. The unique properties of these non-crystalline solids are attributed to their freedom from constraint of periodicity and requirements of stoichiometry. New metastable crystalline or amorphous solid phases were found to form in some simple binary eutectic alloy systems by rapid solidification from metallic melts. Non-crystalline solids may generally be obtained using electrodeposition, electroless deposition and vapour deposition on cold substrates in addition to the most popular method of fast quenching from melts. The preparation of amorphous alloys of nickel-phosphorous[3] and cobalt-phosphorous by chemical reduction process[4], electrodeposition process and preparation of electroless nickel-boron amorphous alloy[5] have been reported earlier. Recently, preparation of non-crystalline zirconium-iron[6,7] and iron-boron[8] alloys by rapid solidification method and electro-chemical method respectively has been reported. The present authors have successfully prepared non-crystalline nickel-sulphur, partly crystalline and crystalline nickel-boron electrodeposits by carefully controlling the parameters, to examine their unusual properties.

The bath composition used to prepare the following deposits were: (i) nickel-sulphate, 52.9 g/l, sodium thiosulphate, 25 g/l, ammonium sulphate, 30 g/l, sodium citrate, 20 g/l, at 0.065 A/cm^2, current density, for non-crystalline nickel sulphur deposit, (ii) nickel sulphate, 57.24 g/l, boric acid, 40 g/l, ammonium sulphate, 33.3 g/l, liquor ammonia, 200 ml/l, 2–mercaptoethanol, 20 ml/l, at 0.65 A/cm^2, current density, for partly-crystalline nickel-boron deposit and (iii) nickel sulphate, 30 g/l, boric acid, 60 g/l, ammonium sulphate, 30 g/l, and borax 50 g/l, at 0.6 A/cm^2, current density, for crystalline nickel-boron deposit. The samples so prepared were dried, powdered and subjected to X-ray diffractogram investigation using standard procedures.

X-ray examination of these deposits, prepared

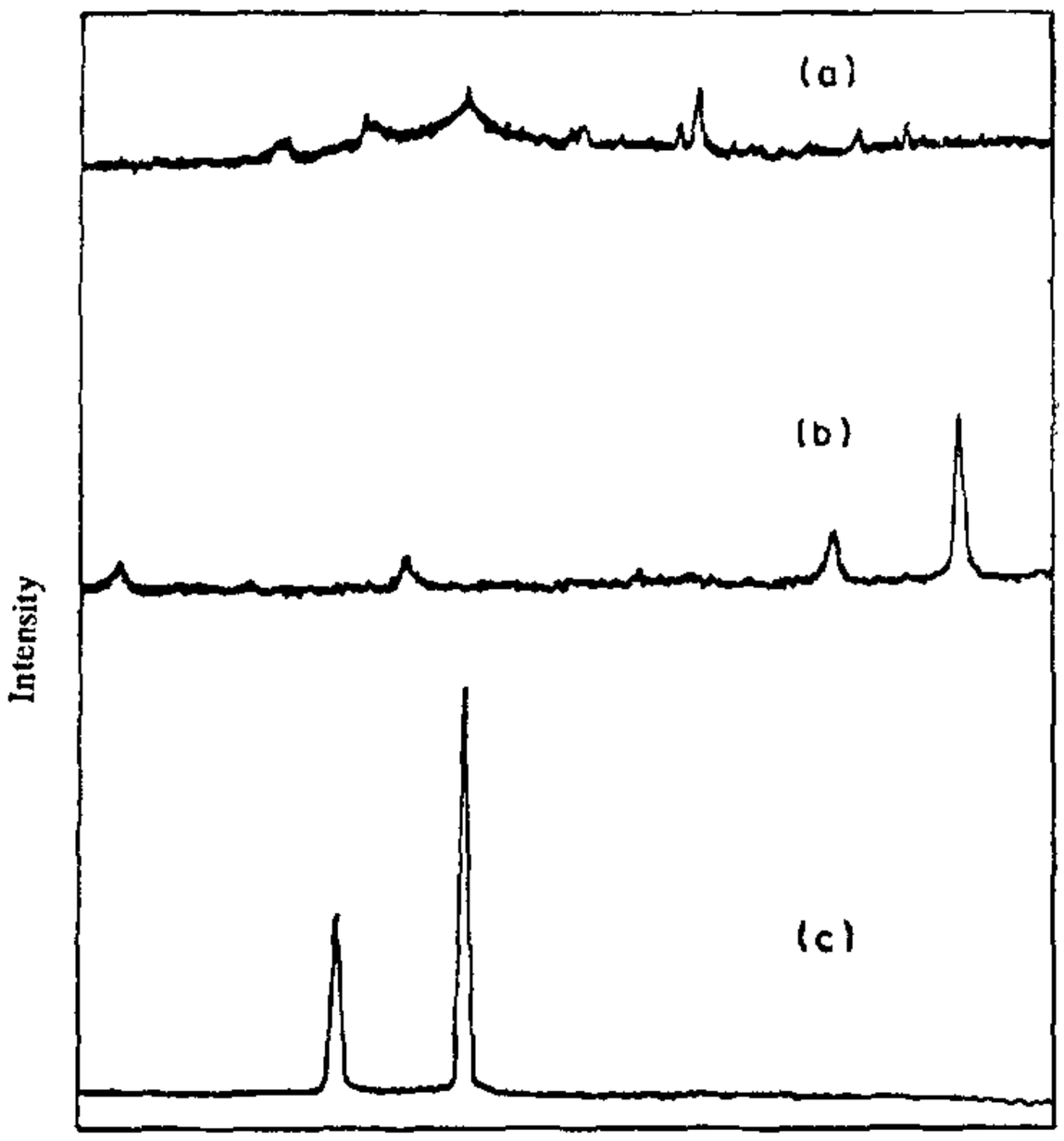

Figure 1a–c. X-ray diffractogram of: **a.** nickel-sulphur non-crystalline electrodeposit, **b.** nickel-boron partly-crystalline electrodeposit, and **c.** nickel-boron crystalline electrodeposit.

using the above bath compositions, revealed an interesting formation of non-crystalline, partly-crystalline and crystalline nature, respectively (figure 1). Formation of these unique deposits is attributed to the abnormal translational correlation in the equilibrium position of the constituent molecules disappearing within distances of a few molecules, leading to discontinuous condensation, which may be due to the bath composition.

The above results indicate a unique formation of non-crystalline nickel-sulphur deposit, partly-crystalline and crystalline nickel-boron deposits. The mechanism of the formation of these interesting deposits is under detailed study.

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STERILITY AND MEIOSIS IN FIVE SPECIES OF JASMINE †

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THE genus *Jasminum* (family Oleaceae) contains a number of economically important shrubs which are used as a source of essential oil. Of the five species of jasmines grown at this Institute, regular seed set under open pollination was observed in three species viz *Jasminum auriculatum* Vahl., *J. calophyllum* L. and *J. flexile* L. Of the remaining two species, *J. grandiflorum* L. sets seed rarely but no seed set was observed in *J. pubescens* Willd. Pollen fertility of these two seed-sterile species was also low (23% in *J. pubescens* Willd. and varied between 48 and 55% in three collections of *J. grandiflorum* L.) as compared to that of *J. auriculatum* Vahl. (90%), *J. calophyllum* L. (71%) and *J. flexile* L. (67%). Meiosis in pollen mother cells of these five species is reported here.

All the species reported were diploid with 26 chromosomes in their somatic complement. In the seed fertile species of *J. auriculatum* Vahl., *J. calophyllum* L. and *J. flexile* L., meiosis was normal, except for the occurrence of cytomixis and sticky chromosomes at metaphase and anaphase stages. However, in *J. flexile* in addition to tetrads, triads were occasionally observed. In *J. grandiflorum* L. thin tubular cytoplasmic connections were frequently observed, particularly in the early stages of Prophase 1. Stickiness of chromosomes leading to

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